

**UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF NEW YORK**

IN RE FOREIGN EXCHANGE  
BENCHMARK RATES ANTITRUST  
LITIGATION

No. 1:13-cv-07789-LGS

**MEMORANDUM OF LAW IN SUPPORT OF PLAINTIFFS'  
OPPOSITION TO CREDIT SUISSE'S *DAUBERT* MOTION TO  
EXCLUDE THE OPINIONS OF PLAINTIFFS' PROPOSED EXPERTS**

**(REDACTED)**

## TABLE OF CONTENTS

INTRODUCTION .....	1
ARGUMENT .....	5
I. BJØNNES AND LJUNGQVIST OFFER A RELIABLE METHODOLOGY FOR CALCULATING CLASS-WIDE IMPACT AND DAMAGES .....	7
A. Challenges to Regression Modeling Are Handled Through Cross Examination, Not Exclusion.....	9
B. Professors Bjønnes and Ljungqvist’s Adverse Selection Theory Is Consistent with and Well Supported by Academic Literature.....	10
1. Credit Suisse’s Experts Failed to Consider Relevant Factors in Analyzing the Adverse Selection Theory .....	10
2. Defendants’ Conduct Resulted in Damage to Class Members .....	11
C. Credit Suisse’s Other Critiques of Bjønnes and Ljungqvist’s Regression Model Do Not Undermine the Admissibility of Their Opinions .....	13
1. Credit Suisse’s Experts Either Misunderstand or Purposely Distort Profs. Bjønnes and Ljungqvist’s Model in Suggesting that It Produces False Positives .....	14
2. Profs. Bjønnes and Ljungqvist Need Not Control for “Trade-Specific Factors” that Defendants Admit Are Unmeasurable .....	15
3. Credit Suisse’s Assertion that the Model Has Low Explanatory Power Does Not Render It Unreliable .....	18
4. Credit Suisse Uses Irrelevant Metrics to Attack the Regression Model .....	21
5. Liquidity Provider Trades Are Not a Basis for Excluding the Model .....	21
6. Bjønnes and Ljungqvist Use a Reliable Statistical Methodology to Estimate Booking Lags .....	22
D. Professors Bjønnes and Ljungqvist’s Opinions Are Not Reliant on Dr. Singer or Mr. Poynder .....	23
II. MR. POYNDRER’S OPINIONS REGARDING SENSITIVE COMPETITIVE INFORMATION ARE RELIABLE AND RELEVANT .....	24
A. Poynder’s Analysis of Bank Chats .....	24
B. Poynder’s Decision to Label Certain Categories of Information as SCI Was Informed by His Extensive Experience in the FX Industry .....	26

C. The Categories of Information that Poynder Considered to Be SCI Are Clear and Objective .....	30
D. The Relatively Few Errors in Poynder’s Findings Do Not Undermine the Reliability of His Analysis.....	32
E. Any “Skew” in the Available Chatroom Transcripts Is Irrelevant to, and Does Not Undermine, Poynder’s Opinions.....	35
F. Poynder’s Findings Are Relevant to the Issues Before the Court .....	36
III. SINGER’S OPINIONS ARE RELIABLE AND RELEVANT.....	38
A. Dr. Singer Reliably Relied on Mr. Poynder’s Identification of SCI.....	39
B. Dr. Singer Reliably Concludes that Sharing of SCI Was Pervasive.....	41
C. Dr. Singer Reliably Evaluates “Conditions Favorable to Collusion” .....	43
D. Dr. Singer’s Regressions Are Reliable .....	47
CONCLUSION.....	50

## TABLE OF AUTHORITIES

	Page(s)
<b>Cases</b>	
<i>Amorgianos v. Nat’l R.R. Passenger Corp.</i> , 303 F.3d 256 (2d Cir. 2002).....	5, 13, 30
<i>Ball Mem. Hosp., Inc. v. Mut. Hosp. Ins., Inc.</i> , 784 F.2d 1325 (7th Cir. 1986) (Easterbrook, J.).....	45
<i>Bazemore v. Friday</i> , 478 U.S. 385 (1986).....	9
<i>Boucher v. U.S. Suzuki Motor Corp.</i> , 73 F.3d 18 (2d Cir. 1996).....	22, 41
<i>Castro v. Sanofi Pasteur Inc.</i> , 134 F. Supp. 3d 820 (D.N.J. 2015) .....	18, 19
<i>Comcast Corp. v. Behrend</i> , 569 U.S. 27 (2013).....	11
<i>Crouch v. John Jewell Aircraft, Inc.</i> , No. 3:07-CV-638, 2016 WL 157464 (W.D. Ky. Jan. 12, 2016) .....	42
<i>Crowley v. Chait</i> , 322 F. Supp. 2d 530 (D.N.J. 2004) .....	29, 30, 31
<i>Cunningham by Cunningham v. Quaker Oats, Co. Fisher-Price Div.</i> , 107 F.R.D. 66 (W.D.N.Y. 1985).....	41
<i>Daubert v. Merrell Dow Pharms., Inc.</i> , 509 U.S. 579 (1993).....	23, 47, 48
<i>Dial Corp. v. News Corp.</i> , 314 F.R.D. 108 (S.D.N.Y. 2015) .....	11, 12
<i>Donellan v. Ferag, Inc.</i> , 26 Fed. App’x 72 (2d Cir. 2002).....	23
<i>E.E.O.C. v. Gen. Tel. Co. of Nw., Inc.</i> , 885 F.2d 575 (9th Cir. 1989) .....	17
<i>Equal Emp’t Opportunity Comm’n &amp; Bailey</i> , No. 10C6139, 2016 WL 5796890 (N.D. Ill. Sept. 30, 2016).....	20

<i>20Erie R. Co. v. Linnekogel</i> , 248 F. 389 (2d Cir. 1917).....	41
<i>Freeland v. AT&amp;T Corp.</i> , 238 F.R.D. 130 (S.D.N.Y. 2006) .....	17
<i>Ge Dandong v. Pinnacle Performance Ltd.</i> , No. 10 Civ. 8086 (JMP), 2013 WL 5658790 (S.D.N.Y. Oct. 17, 2013) .....	6
<i>General Electric Co. v. Joiner</i> 522 U.S. 136 (1997).....	13
<i>Griffin v. Bd. of Regents of Regency Univs</i> 795 F.2d 1281 (7th Cir. 1986) .....	19
<i>Hughes v. The Ester C Co.</i> , 317 F.R.D. 333 (E.D.N.Y. 2016) .....	5, 6
<i>Hunt v. CNH America LLC</i> , No. 12-1301-cf, 2013 WL 440176 (2d Cir. Feb. 6, 2013).....	13
<i>Iconics, Inc. v. Massaro</i> , 266 F. Supp. 3d 461 (D. Mass. 2017) .....	28
<i>In re Air Cargo Shipping Servs. Antitrust Litig.</i> , No. 06-MD-1175 (JG) (VVP), 2014 WL 7882100 (E.D.N.Y. Oct. 15, 2014), <i>report and recommendation adapted</i> , No. 06-MD-1775, 2015 WL 5093503 (E.D.N.Y. July 10, 2015) .....	5, 9, 10, 21
<i>In re Blech Sec. Litig.</i> , No. 94 Civ. 7696 (RWS), 2003 WL 1610775 (S.D.N.Y. Mar. 26, 2003) .....	29
<i>In re Commodity Exch., Inc.</i> , 213 F. Supp. 3d 631 (S.D.N.Y. 2016).....	21
<i>In re Cox Enters., Inc. Set-Top Cable Television Box Antitrust Litig.</i> , No. 12-MDL-2048-C, 2014 WL 107674 (W.D. Okla. Jan. 9, 2014) .....	45, 46
<i>In re Gabapentin Patent Litig.</i> , MDL No. 1384, 2011 WL 12516763 (D.N.J. Apr. 8, 2011) .....	40
<i>In re: Gen. Motors LLC Ignition Switch Litig.</i> , No. 14-MD-2543 (JMF), 2015 WL 9480448 (S.D.N.Y. Dec. 29, 2015) .....	22, 23
<i>In re High-Tech Employee Antitrust Litigation</i> , 985 F. Supp. 2d 1167 (N.D. Cal. 2013) .....	49

<i>In re LIBOR-Based Fin. Instruments Antitrust Litig.</i> , 299 F. Supp. 3d 430 (S.D.N.Y. 2018).....	39
<i>In re Mushroom Direct Purchaser Antitrust Litig.</i> , No. 06-0620, 2015 WL 5767415 (E.D. Pa. July 29, 2015) .....	5, 6
<i>In re NYSE Specialists Sec. Litig.</i> , 260 F.R.D. 55 (S.D.N.Y. 2009) .....	5
<i>In re Polypropylene Carpet Antitrust Litig.</i> , 93 F. Supp. 2d 1348 (N.D. Ga. 2000) .....	13, 14
<i>In re Processed Egg Prods. Antitrust Litig.</i> , 81 F. Supp. 3d 412 (E.D. Pa. 2015) .....	43, 44
<i>Johnson Elec. N. Am. Inc. v. Mabuchi Motor Am. Corp.</i> , 103 F. Supp. 2d 268 (S.D.N.Y. 2000).....	13
<i>Johnson v. Arizona Hosp. &amp; Healthcare Ass’n</i> , No. CV 07-1292, 2009 WL 5031334 (D. Ariz. July 14, 2009) .....	49
<i>Kumho Tire Co. Ltd. v. Carmichael</i> , 526 U.S. 137 (1999).....	13
<i>Lyman v. St. Jude Med. S.C., Inc.</i> , 580 F. Supp. 2d 719 (E.D. Wis. 2008).....	20
<i>Mazda v. Carfax, Inc.</i> , 13-cv-2680 (AJN), 2016 WL 7231941 (S.D.N.Y. Dec. 9, 2016) .....	40
<i>Palmer v. Schultz</i> , 815 F.2d 84 (D.C. Cir. 1987) .....	16
<i>Redman v. Mar. Overseas Corp.</i> , No. 94 Civ. 0838 (SAS), 1996 WL 19010 (S.D.N.Y. Jan. 17, 1996).....	41
<i>Reed v. Advocate Health Care</i> , 263 F.R.D. 573 (E.D. Ill. 2009) .....	19
<i>Reed Constr. Data Inc. v. McGraw-Hill Cos., Inc.</i> , 49 F. Supp. 3d 385 (S.D.N.Y. 2014), <i>aff’d</i> , 638 Fed. App’x 43 (2d Cir. 2016) .....	16
<i>R.F.M.A.S., Inc. v. So</i> , 748 F. Supp. 2d 244 (S.D.N.Y. 2010).....	22, 23
<i>Roach v. T.L. Cannon Corp.</i> , 778 F.3d 401 (2d Cir. 2015).....	11

<i>Rossini v. Ogilvy &amp; Mather, Inc.</i> , 798 F.2d 590 (2d Cir. 1986).....	17
<i>Ruiz-Troche v. Pepsi Cola of Puerto Rico Bottling Co.</i> , 161 F.3d 77 (1st Cir. 1998).....	6
<i>Scott v. Chipotle Mexican Grill, Inc.</i> , 315 F.R.D. 33 (S.D.N.Y. 2016) .....	28, 29
<i>SE Prop. Holdings, LLC v. Ctr.</i> , Civil Action 15-00332017 .....	7
<i>Sobel v. Yeshiva Univ.</i> , 839 F.2d 18 (2d Cir. 1988).....	9, 16
<i>SR Int’l Bus. Ins. Co. v. World Trade Ctr. Props., LLC</i> , 467 F.3d 107 (2d Cir. 2006).....	31
<i>Tyson Foods v. Bouaphakeo</i> , 577 U.S. 136 S. Ct. 1036, 1049 (2016).....	22
<i>U.S. Info. Sys., Inc. v. Int’l Bhd. of Elec. Workers Local Union No. 3 AFL-CIO</i> , 313 F. Supp. 2d 213 (S.D.N.Y. 2004).....	43
<i>U.S. v. Pettway</i> , No. 12-CR-103S (1), (2), 2016 WL 6134493, (W.D.N.Y. Oct. 21, 2016) .....	31
<i>U.S. v. Usher</i> , 17 Cr. 19 (RMB) (S.D.N.Y. Oct. 12, 2018).....	44, 49
<i>U.S. v. Williams</i> , 506 F.3d 151 (2d Cir. 2007).....	6
<i>U.S. v. Williams</i> , No. CR 05-920, 2008 WL 5382264 (C.D. Cal. Dec. 23, 2008).....	32
<i>Universe Antiques, Inc. v. Vareika</i> , No. 10 Civ. 3629, 2011 WL 5117057 (S.D.N.Y. Oct. 21, 2011) .....	7
<i>Washington v. Kellwood Co.</i> , 105 F. Supp. 3d 293 (S.D.N.Y. 2015).....	22
<b>Statutes, Rules, and Regulations</b>	
Federal Rules of Civil Procedure	
Rule 23 .....	2, 6

Federal Rules of Evidence	
Rule 401(a).....	37
Rule 702 .....	<i>passim</i>
<b>Other Authorities</b>	
<i>An Empirical Inquiry,</i> 78 BROOKLYN LAW REVIEW 1391 (2013).....	40
DOJ, <i>Price Fixing, Bid Rigging, and Market Allocation Schemes: What They Are</i> <i>and What to Look For</i> .....	44
Federal Judicial Center, <i>Reference Manual on Scientific Evidence</i> (3d ed. 2011) .....	13, 17, 19
Jeffrey M. Wooldridge, <i>Introductory Econometrics: A Modern Approach</i> (Cengage Learning 4th ed. 2009).....	19
John Buonaccorsi, MEASUREMENT ERROR: MODELS, METHODS, AND APPLICATIONS (Chapman & Hall/CRC 2010) .....	39
Toby Roberts, <i>When Bigger is Better: A Critique of the Herfindahl-Hirschman</i> <i>Index's Use to Evaluate Mergers in Network Industries,</i> 34 PACE LAW REVIEW 894, 895-907, 910-11, 915-21 (2014) .....	45



## **INTRODUCTION**

Like their opposition brief, Credit Suisse claims Plaintiffs’ have “dramatically reshaped their theory and scrambled to assemble expert support.” Opp. at 1. Plaintiffs have been pursuing their theory that “Defendants conspired to fix spot prices by agreeing to artificially widen spreads quoted to customers” since 2015. SAC, ¶9. The inconsistency of Credit Suisse’s claiming on one hand that Plaintiffs have scrambled for expert support while on the other hand criticizing Mr. Poynder for having “worked for years as a consulting expert to Plaintiffs’ counsel, aiding in their prosecution of the case” is remarkable. Opp. at 2. Not to be outdone, Credit Suisse’s rebuttal experts grossly mischaracterize testimony, misstate equations, set forth nonexistent standards that they do not even follow outside of this case, and ignore tens of millions of relevant data points. Credit Suisse and its experts’ willingness to say nearly anything to defeat class certification makes them – not Plaintiffs’ experts – unreliable. Plaintiffs’ experts all produced relevant and reliable opinions that satisfied both F.R.E. 702 and *Daubert*. The Court should deny Credit Suisse’s motion.

The opinions of Profs. Geir Høidal Bjønnes and Alexander Ljungqvist meet standards for the admission of expert testimony at the class certification stage; Credit Suisse’s critiques of their model do not undermine that fact. Informed by peer-reviewed market microstructure literature, Profs. Bjønnes and Ljungqvist created an unbiased trade-cost analysis (TCA) model that reliably identifies impact and damage to the Classes. Controlling for all material common factors affecting FX pricing, Profs. Bjønnes and Ljungqvist compared effective costs during the class period to such costs in a clean period of 2014-15. Their results were consistent with the theory set forth that Defendants’ exploitation of price equivalent sensitive competitive information (“SCI”) resulted in increased adverse selection risk which, in turn, resulted in wider spreads marketwide.

To critique this model, Drs. Allan Kleidon and Janusz Ordover (collectively, the “CS Economists”) distort the model’s operation and ignore the allegations in the action, the contents of the BL report, and actual FX market conditions. Whether it is Dr. Kleidon misstating the model’s equation to invent failings in the model, Dr. Ordover identifying “omitted” factors that are either directly included or proxied for in their regression, or both CS Economists attempting to invert the regression to disguise its operation as suggesting damages in the clean period, their critiques are premised upon misunderstandings or distortions. Detached from market realities, the allegations of the Action, and the BL report’s underlying theory, the CS Economists’ criticisms of Profs. Bjønnes and Ljungqvist do not stand up to scrutiny.

The CS Economists’ disagreement with Profs. Bjønnes and Ljungqvist’s opinions does not warrant the exclusion of those opinions. Profs. Bjønnes and Ljungqvist’s opinions are reliable and admissible to assist the Court in determining whether Plaintiffs have satisfied the criteria of Rule 23.

Mr. Robin Poynder’s usefulness has already been confirmed by an unlikely source, Credit Suisse’s own economist, Dr. Ordover, who acknowledged in his deposition “[o]bviously, Mr. Poynder understands [FX trader] speech to some extent and was able to translate wherever those guys were talking into something that you and I can potentially understand.”<sup>1</sup> That acknowledgement is explanation enough of Poynder’s value. Using his 35-plus years of experience in the FX market, including 17 years as a market-maker, Poynder determined that three categories of information could plausibly be used by Defendants’ traders to increase the effective spreads/transaction costs that customers paid during the Class Period: information about spreads, open orders, or customer-specific market activity. He labeled these three

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<sup>1</sup> Ordover Dep. at 130:4-9.

categories as SCI. Poynder then applied his industry experience to interpret the often specialized, technical, and slang-ridden language used by Defendants' traders in multibank chatrooms to determine whether SCI was in fact exchanged. After reviewing thousands of chatroom transcripts falling on 91 randomly selected trading days during the Class Period, Poynder found that two or more Defendants engaged in more than 8,000 SCI exchanges about 76 distinct currency pairs in 1,500+ separate chatroom transcripts covering 90 of the 91 sample days.

Credit Suisse does not dispute Poynder's qualifications or the relevance of his analysis to whether Plaintiffs can establish their alleged conspiracy using common evidence. Rather, Credit Suisse tries to undermine the reliability of Poynder's methodology by grossly mischaracterizing the concept of SCI and pointing to an immaterial number of errors that Poynder not only conceded, but also went out of his way to independently search for and correct after receiving Credit Suisse's critiques. Poynder's corrections leave more than 95% of his original findings intact. And virtually all of the corrections concern Poynder's inadvertent review of documents that should have been filtered out – in other words, virtually none of the removed findings were “false positives” such that Poynder incorrectly identified SCI. Such corrections do not undermine the reliability of Poynder's analysis or the inferences that the Court can draw from them for purposes of class certification. Moreover, since his initial report, Poynder has reviewed additional chatroom transcripts and identified nearly 5,000 more instances of SCI sharing, making the findings removed from his initial review even more trivial. Therefore, Poynder's opinions should be admitted for the purpose of demonstrating the pervasiveness of the chat room conduct.

Dr. Singer also used well-accepted methodologies to generate the opinions set forth in his report. Credit Suisse's arguments to the contrary are misguided. Dr. Singer's methodology is not unreliable for failing to account for measurement error. Academic literature says that the impact of measurement error can be "nonexistent." That is true here because, as a matter of statistics, the chance that errors in Poynder's work would overturn Dr. Singer's finding of pervasive SCI sharing is near zero. Moreover, Credit Suisse's attempt to make measurement error a litmus test for expert reliability is undercut by the fact that its own rebuttal expert often does not account for measurement error in his comparable, peer-reviewed academic studies or his expert testimony in other litigation.

Dr. Singer's definition of "pervasive" is also sound and consistent with Plaintiffs' theory. Credit Suisse's criticism that Dr. Singer should have judged pervasiveness by total communications instead of total trading days is classic fodder for cross-examination and does not suggest that his methods for computing the statistics he cited were unreliable. The extreme hypotheticals that Credit Suisse constructs to suggest a flaw in Dr. Singer's definition disregards the evidence and should be inadmissible for that reason.

Dr. Singer reasonably declined to use the Herfindahl-Hirschman Index ("HHI") to assess market concentration. He did not use HHI because it assumes that Defendants ***did not*** coordinate on price, which is exactly the opposite of Plaintiffs' allegations.

Dr. Singer ran his two regressions using standard and well-accepted methods in the relevant field, which Credit Suisse does not deny. Unlike Credit Suisse's economist, Dr. Ordoover, Dr. Singer's EBS Regression ***did*** use data from all available time periods. Dr. Ordoover, on the other hand, arbitrarily discards more than 85 million data points and disregards most of the years in the Class Period.

In sum, Credit Suisse fails to establish that any of Plaintiffs' experts used an unreliable methodology or that the evidence cited by those experts cannot be applied class-wide. All of Credit Suisse's arguments go to the experts' weight and not their admissibility. With no jury to protect at this class certification stage, there is no reason – let alone a compelling reason – for the Court to exclude any of Plaintiffs' experts' opinions. Credit Suisse's motion should be denied.

### **ARGUMENT**

Federal Rule of Evidence 702 governs the admissibility of expert testimony. Courts apply this rule in a manner consistent with the “liberal admissibility standards of the federal rules,” opinions should only be excluded if their flaws are “large enough that the expert lacks ‘good grounds’ for his or her conclusions.” *Amorgianos v. Nat’l R.R. Passenger Corp.*, 303 F.3d 256, 267 (2d Cir. 2002). “[A] review of the case law after *Daubert* shows that the rejection of expert testimony is the exception rather than the rule.” *In re NYSE Specialists Sec. Litig.*, 260 F.R.D. 55, 65 (S.D.N.Y. 2009).

Three of the four experts that Credit Suisse moves to strike (Bjønnes, Ljungqvist, and Singer) are economists. Deference to expertise is particularly appropriate for “‘soft sciences’ like economics and statistics” because they often involve “‘matters in which reasonable experts may differ.’” *Hughes v. The Ester C Co.*, 317 F.R.D. 333, 341 (E.D.N.Y. 2016)<sup>2</sup>; and because these fields “‘require the use of professional judgment,’ [such that] expert testimony [in those fields] is less likely to be excluded because ‘challenges may ultimately be viewed as matters in which reasonable experts may differ.’” *In re Air Cargo Shipping Servs. Antitrust Litig.*, No. 06-MD-1175 (JG) (VVP), 2014 WL 7882100, at \*8 (E.D.N.Y. Oct. 15, 2014), *report and recommendation adopted*, No. 06-MD-1775, 2015 WL 5093503 (E.D.N.Y. July 10, 2015) (“*Air*

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<sup>2</sup> Unless otherwise noted, citations are omitted and emphasis is added.

*Cargo*”). “The process is not like a Pythagorean demonstration of a mathematical truth that can be revealed indisputably.” *In re Mushroom Direct Purchaser Antitrust Litig.*, No. 06-0620, 2015 WL 5767415, at \*12 (E.D. Pa. July 29, 2015). “Even if the data relied on by the expert is ‘imperfect, and more (or different) data might have resulted in a ‘better’ or more ‘accurate’ estimate in the absolute sense, it is not the district court’s role under *Daubert* to evaluate the correctness of facts underlying an expert’s testimony.” *Id.*

*Daubert* “neither requires nor empowers trial courts to determine which of several competing scientific theories has the best provenance.” *Ruiz-Troche v. Pepsi Cola of Puerto Rico Bottling Co.*, 161 F.3d 77, 85 (1st Cir. 1998). Rather, the touchstone is mere “reliability,” which considers whether the testimony is grounded on sufficient facts or data; whether the testimony is the product of reliable principles and methods; whether the witness has applied the principles and methods reliably to the facts of the case; whether the theory can be tested; whether the theory has been peer-reviewed and published; whether there are known error rates and standards controlling the technique’s operation; and whether the technique has gained acceptance in the relevant scientific community. *See U.S. v. Williams*, 506 F.3d 151, 160 (2d Cir. 2007). The reliability inquiry is a “flexible one” and the specific list of factors above “neither necessarily nor exclusively applies to all experts or in every case.” *Id.*

At the class certification stage, “[t]he question is not . . . whether a jury at trial should be permitted to rely on [the expert’s] report to find facts as to liability, but rather whether [the Court] may utilize [the expert’s testimony] in deciding whether the requisites of Rule 23 have been met.” *Ge Dandong v. Pinnacle Performance Ltd.*, No. 10 Civ. 8086 (JMP), 2013 WL 5658790, at \*13 (S.D.N.Y. Oct. 17, 2013). *See also Hughes*, 317 F.R.D. at 340 (at class certification, “the scope of the *Daubert* analysis is cabined by its purpose’ and ‘the inquiry is

limited to whether or not the expert reports are admissible to establish the requirements of Rule 23”). Accordingly, it is “not necessary to resolve every merits dispute” raised by the parties. *Id.* The test is ““relaxed”” because ““there is less need for the gatekeeper to keep the gate when the gatekeeper is keeping the gate only for himself.”” *SE Prop. Holdings, LLC v. Ctr.*, Civil Action 15-00332017 WL 242610, at \*3 (S.D. Ala. Jan. 19, 2017); *see also Universe Antiques, Inc. v. Vareika*, No. 10 Civ. 3629, 2011 WL 5117057, at \*6 (S.D.N.Y. Oct. 21, 2011) (same).

**I. BJØNNES AND LJUNGQVIST OFFER A RELIABLE METHODOLOGY FOR CALCULATING CLASS-WIDE IMPACT AND DAMAGES**

Professors Bjønnes and Ljungqvist developed a model that can be applied formulaically to all members of the class to measure impact and damages caused by Defendants’ collusive behavior to fix FX prices. The theory underlying the model is relatively simple: in any financial transaction where traders have different amounts of information, they will “price” this risk of trading with a better-informed counterparty. Here, Defendants’ exploitation of price-equivalent information (which Plaintiffs refer to as SCI) in the chat rooms increased information asymmetry in the FX market. *Id.*, ¶12. The increased information asymmetry increased adverse selection risk, which is the risk of trading with a better-informed counterparty. *Id.* Dealers in the FX market reacted to increased adverse selection risk by widening bid-ask spreads. *Id.*

As Credit Suisse readily admits, adverse selection risk “exists in every market,”<sup>3</sup> Mot. at 32, and the FX market is no different. *Id.*, ¶15. In their reports, Profs. Bjønnes and Ljungqvist discuss the consensus achieved in the field of FX microstructure and decades of academic literature affirming the existence and importance of adverse selection risk in setting FX prices.

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<sup>3</sup> The Credit Suisse Defendants’ Memorandum of Law in Support of *Daubert* Motion to Exclude Plaintiffs’ Proposed Expert Opinions is referred to as “Mot.”

Expert Report of Geir Høidal Bjønnes and Alexander Ljungqvist (“BL Report”), ¶¶82; *see* BL Rebuttal, ¶¶14-17. Defendants’ alleged conduct increased adverse selection risk, widening spreads throughout the market. BL Rebuttal, ¶18.

Profs. Bjønnes and Ljungqvist use ordinary least squares regression analysis to measure the effect of the increased adverse selection risk. Their model compares FX effective costs during the class period to FX effective costs after the collusion ceased.<sup>4</sup> BL Report, ¶¶102-04. To make this comparison, they created an econometric model based on trade cost analysis (“TCA”), an approach widely used in academic research and industry, as well as by regulators, to measure the “but for effective cost, of a trade.” *Id.*, ¶¶28, 93. Using data from a clean period after the collusion ceased, the model generates regression coefficients for the common factors that influence FX pricing, such as volatility, time of day, and liquidity of the currency pair. *Id.*, ¶¶106-09. The experts then apply these clean-period coefficients to transactions during the Class Period, to estimate what the but-for effective cost of a transaction would have been in the absence of collusion. The difference between the but-for effective cost and the actual effective cost represents the measure of damages for each transaction. *Id.*, ¶107. They then aggregate the sum of the differences on a class-member-by-class member basis, netting out any transactions in which negative damages occurred. Finally, they sum all class members’ net damages to determine aggregate damages for the Class.

Applying their regression model, Profs. Bjønnes and Ljungqvist establish class-wide antitrust impact and show that all or virtually all proposed class members paid increased spreads

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<sup>4</sup> As a practical matter, “effective costs” can be seen as equivalent to the “effective half-spread” faced by a customer – the difference between the reference price midpoint and the actual execution price. Accordingly, it is generally fair to describe these “effective costs” as “spreads,” but keep in mind that they do not amount to spreads actually quoted to a customer. [REDACTED], Profs. Bjønnes and Ljungqvist estimate spreads through the TCA approach to calculate “effective costs.”



on FX transactions due to Defendants' collusive actions on at least one trade. *Id.*, ¶144. Importantly, their model can identify and exclude from any damages recovery those specific class members who experienced net-negative damages, meaning the amount of negatively damaged trades exceeds the amount of damages on positively damaged trades. BL Rebuttal, ¶101.

Credit Suisse criticizes this methodology primarily on two fronts. First, it suggests that the theory underlying the model, that increased adverse selection risk resulted in wider spreads throughout the market, is internally inconsistent and that the regression model fails to measure its effects. As addressed in the BL Rebuttal, it is Credit Suisse's critiques that are inconsistent, as such critiques have failed to accurately analyze the effects of increased adverse selection risk on class members. Second, Credit Suisse argues that the model is too imprecise to reliably measure impact and damages. This critique centers on criticisms irrelevant to the model's reliability, and portrays its findings as flawed and inaccurate results.

**A. Challenges to Regression Modeling Are Handled Through Cross Examination, Not Exclusion**

It is well established that disputes about regression modeling go to the weight of an expert's opinion, not its admissibility. In *Bazemore v. Friday*, 478 U.S. 385, 400 (1986), the Supreme Court held that omissions of variables from a regression model "affect the analysis' probativeness, not its admissibility." *See also Sobel v. Yeshiva Univ.*, 839 F.2d 18, 34 (2d Cir. 1988) ("[F]laws in plaintiffs' regressions. . . [go] to the weight rather than their admissibility.").

Credit Suisse and its experts predominantly attack minor details of Plaintiffs' experts' methods, such as the exclusion of relevant variables and the mechanism used to proxy

acknowledged gaps in the data.<sup>5</sup> But excluding such testimony on the basis of minor details “is more likely to be inappropriate.” *Air Cargo*, 2014 WL 7882100, at \*7-\*8. Such attacks on an economist’s methods “go to the weight of the evidence, not its admissibility, and should be addressed using the established tools of [v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof.” *Id.*, at \*8.

**B. Professors Bjønnes and Ljungqvist’s Adverse Selection Theory Is Consistent with and Well Supported by Academic Literature**

**1. Credit Suisse’s Experts Failed to Consider Relevant Factors in Analyzing the Adverse Selection Theory**

While Ordover described his role as “look[ing] at particularized circumstances . . . to understand the types of information that has been exchanged among whom”<sup>6</sup> and Kleidon acknowledged in his report that “[a]n appropriate way to define a methodology in this matter is to begin with the allegations, apply economic reasoning to determine the effect, if any, of the allegations, and then determine an econometric model . . .,”<sup>7</sup> the CS Economists have, by disregarding Plaintiffs’ allegations, failed at each level of this analysis.

Kleidon and Ordover fundamentally disregarded the adverse selection theory, instead focusing solely on chats relating to spreads,<sup>8</sup> ignoring the increased adverse selection risk associated with the exchanging and exploitation of SCI more generally. This approach reflects their uninformed view of the FX market and blindness to Profs. Bjønnes and Ljungqvist’s theory and model. The CS Economists disclaimed, among other things, knowledge of chat

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<sup>5</sup> Credit Suisse does not offer any meaningful challenge based on Profs. Bjønnes and Ljungqvist’s credentials to their qualifications to serve as experts.

<sup>6</sup> Ordover Dep. 48:23-49:1.

<sup>7</sup> Kleidon Report, ¶50.

<sup>8</sup> See Kleidon Report, ¶52; Ordover Report, ¶13; Ordover Dep. 184:15-25.

communications,<sup>9</sup> the scope and extent of chats,<sup>10</sup> the content of guilty pleas,<sup>11</sup> and Credit Suisse's own consent order.<sup>12</sup> The extent of their refusal to consider the facts is best demonstrated by Ordover's own testimony. When asked if he was aware that Plaintiffs had identified more than [REDACTED], Dr. Ordover responded guilelessly: "[REDACTED]"<sup>13</sup> The CS Economists' disregard for the allegations and Plaintiffs' theory infects every level of their analysis.

## **2. Defendants' Conduct Resulted in Damage to Class Members**

In *Comcast v. Behrend*, the Supreme Court held that "a model for determining classwide damages" must "measure damages that result from the class's asserted theory of injury." *Roach v. T.L. Cannon Corp.*, 778 F.3d 401, 407 (2d Cir. 2015) (citing *Comcast Corp. v. Behrend*, 569 U.S. 27, 34 (2013)). Credit Suisse attempts to create a *Comcast* problem by suggesting that Plaintiffs must disaggregate each individual chat into an individualized injury. Mot. at 36. Unlike in *Comcast*, where the Court rejected three of plaintiffs' four theories of liability, Plaintiffs here allege a single theory: that an agreement to fix prices was effectuated through the exploitation of SCI. BL Rebuttal, ¶12. That conduct increased adverse selection risk, thus increasing effective costs throughout the FX market during the Class Period.

Here, Defendants effectuated their conspiracy through pervasive exploitation of SCI which had the singular, cumulative effect of marketwide increases in effective trading costs. *Id.*,

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<sup>9</sup> Ordover Dep. 58:1-9; Kleidon Dep. 71:16-71:21.

<sup>10</sup> Ordover Dep. 128:2-3.

<sup>11</sup> Kleidon Dep. 68:1-9.

<sup>12</sup> Kleidon Dep. 71:22-25.

<sup>13</sup> Ordover Dep. 128:2-3.

¶18. Plaintiffs do not contend that there are multiple theories of liability that had an impact on prices, and Profs. Bjønnes and Ljungqvist were not required to model such disparate theories for their reports to be admissible. *See Dial Corp. v. News Corp.*, 314 F.R.D. 108, 117-18 (S.D.N.Y. 2015). Rather, the circumstances here are more akin to that in *Dial Corp.* where plaintiffs purported nine different categories of defendants’ exclusionary conduct which together had the “cumulative effect” of antitrust injury. *Id.* at 117.

Credit Suisse’s contention that Profs. Bjønnes and Ljungqvist failed to measure the effects of adverse selection resulting from Defendants’ collusion also underscores Defendants’ experts’ lack of consideration of adverse selection risk.<sup>14</sup> Profs. Bjønnes and Ljungqvist’s model measures the effect of adverse selection risk caused by Defendants’ conspiracy. Their model holds constant all material common factors that affect FX pricing during the clean period and the class period. The difference for pricing a trade represents damages. The only material difference between prices in the clean period and the class period, after holding constant all material common factors, is Defendants’ conduct.

Credit Suisse argues that this theory is inherently inconsistent because it posits that Defendants, who have greater information, would exploit their informational advantage by offering narrower spreads. Mot. at 33. But Credit Suisse’s experts ignore the crucial piece of the puzzle – **conspiracy**. BL Rebuttal, ¶¶32-35. Defendants **agreed** to fix prices. Indeed, as discussed above, Credit Suisse’s experts were hardly aware of the vast evidence of collusion. In a free and functioning market, the one with a greater information advantage would be able to offer a lower price because the risk of incurring a loss is lower. Offering a lower price is an effective way to attract a buyer. However, Defendants had no need to offer lower prices

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<sup>14</sup> Kleidon Report, ¶50. Kleidon did not think that this needed to be measured directly.

(narrower spreads) because of their agreement. As described in Plaintiffs' papers in support of class certification, there is ample evidence of the existence of a conspiracy to fix prices by widening spreads. Mem. at 8-22. Wider spreads led to greater profits. Without the risk of losing customers, Defendants could, and did, in fact, increase trading costs for class members.<sup>15</sup>

**C. Credit Suisse's Other Critiques of Bjønnes and Ljungqvist's Regression Model Do Not Undermine the Admissibility of Their Opinions**

Profs. Bjønnes and Ljungqvist have presented a reliable model to measure impact and damages on a class wide basis using OLS regression analyses. "Numerous courts have held that regression analysis is a reliable method for determining damages and 'a mainstream tool in economic study.'" *Johnson Elec. N. Am. Inc. v. Mabuchi Motor Am. Corp.*, 103 F. Supp. 2d 268, 283 (S.D.N.Y. 2000) (collecting cases); see also "Reference Guide on Multiple Regression," Federal Judicial Center, *Reference Manual on Scientific Evidence*, 305-07 (3d ed. 2011) ("*Reference Manual*").<sup>16</sup> Like the regressions frequently approved of by courts, Profs. Bjønnes and Ljungqvist's model "account[s] for the major independent influences on the dependent variable – the variable that is estimated or forecast by the model – in order to arrive at a reliable

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<sup>15</sup> It is also true that when trading on interbank platforms Defendants themselves would be exposed to wider spreads. Defendants passed on any increased costs they faced trading on EBS and Reuters to class members through single-bank and voice trades. BL Rebuttal, ¶23. Further, any incidental cost Defendants would have paid trading on EBS and Reuters would be neutralized by the gains they obtained trading with end-use customers on their single bank platforms and voice trades. *Id.*, ¶36. Prof. Bjønnes' testimony that Defendants do not "suffer" from increased adverse selection risk is consistent with the fact that dealers were exposed to increased adverse selection risk, Mot. at 34, because *overall* Defendants benefited from increased adverse selection risk. In this manner, Defendants' reliance on *Kumho Tire Co. Ltd. v. Carmichael*, 526 U.S. 137, 154-57 (1999), and *Hunt v. CNH America LLC*, No. 12-1301-cf, 2013 WL 440176, at \*3 (2d Cir. Feb. 6, 2013), is misplaced because there are no internal inconsistencies in Plaintiffs' experts' theory.

<sup>16</sup> Credit Suisse's reliance on *General Electric Co. v. Joiner*, and *Amorgianos*, is misplaced. Mot. at 31 (citing 522 U.S. 136, 146 (1997); 303 F.3d at 267). In both cases, the district courts properly excluded expert testimony proffered to prove specific causation between chemical exposure and disease. In *Amorgianos*, the plaintiffs' expert failed to include common factors in his analysis that he admitted were necessary to properly determine the question of causation, and for which he had accessible data. In *General Electric*, the Supreme Court upheld the exclusion of an expert report which opined on causation exclusively based on epidemiological studies which did not support a causal link between chemical exposure and cancer.

prediction of the dependent variable.” *In re Polypropylene Carpet Antitrust Litig.*, 93 F. Supp. 2d 1348, 1359-60 (N.D. Ga. 2000) (“PPC”). The model produces reliable results.

**1. Credit Suisse’s Experts Either Misunderstand or Purposely Distort Profs. Bjønnes and Ljungqvist’s Model in Suggesting that It Produces False Positives**

Profs. Bjønnes and Ljungqvist’s model does not result in false positives. First, Dr. Ordoover attempts to apply the regression model to trades in the clean period, purportedly finding damage on half of the trades. But as Profs. Bjønnes and Ljungqvist indicate in their report, any forecasting model using an OLS regression when applied to the same period over which it was estimated (or, in econometric terms, an “in-sample forecast”) will produce approximately half of the residuals above and half of the residuals below the predicted amount. This is because an OLS regression will always produce residuals that are equal to zero on average mathematically, meaning that when applied in the clean period, half of the trades will show positive “damage” and half will show negative “damage” by design. BL Rebuttal, ¶¶84-87. By recasting the residuals as damage, Ordoover’s critique fundamentally misunderstands the nature of an OLS regression.

Dr. Kleidon’s method of “measuring” damages during the clean period is equally problematic. Using an incorrect formula, Kleidon suggests that what the regression component that Profs. Bjønnes and Ljungqvist’s model ascribes to as “damages” during the Class Period, is the same regression component they ascribe to an “error term” during the clean period. Kleidon Report, ¶40. But instead of using Profs. Bjønnes and Ljungqvist’s formula, Kleidon makes a simple, but consequential, typo, conflating  $\alpha$  with  $\hat{\alpha}$  (he misses the “hat” on the alpha). BL Rebuttal, ¶59. The effect of this substitution is that all of Kleidon’s calculations use the incorrect term. *Id.* In economic terms, the equation he mistakenly uses for this analysis conflates the out-

of-sample forecast (Class Period damages) with the in-sample error term (clean period error term). *Id.*, ¶57. Quite simply, in attempting to run the model using the incorrect formula, he falsely asserts that the model finds damages in the clean period; using the actual equations, it does not. BL Report, ¶¶59-62. Dr. Ordoover and Dr. Kleidon’s critiques do not provide a basis for finding Profs. Bjønnes and Ljungqvist’s model is unreliable, because the critiques themselves are erroneous.

## **2. Profs. Bjønnes and Ljungqvist Need Not Control for “Trade-Specific Factors” that Defendants Admit Are Unmeasurable**

Credit Suisse argues that Profs. Bjønnes and Ljungqvist’s opinions should be excluded because their regression analysis did not control for certain “trade-specific factors” that are “not capable of modeling on an aggregate, classwide basis.” Mot. at 43.

First, and most importantly, Profs. Bjønnes and Ljungqvist *did* control for all material common factors in estimating spreads during the clean period, including order size, trading platform, volatility, time of day, customer trading frequency, and sophistication. BL Report, ¶104, Appendix F; BL Rebuttal, ¶63. Nearly half a century of academic research estimating trade costs in the FX market have focused on the common factors Profs. Bjønnes and Ljungqvist include in their regression model to determine but-for pricing. Indeed, Prof. Bjønnes is one of the foremost scholars in this field. Those in the industry have also used TCA to estimate spreads for decades. Ljungqvist Dep. at 219:14-24. Credit Suisse has not, and indeed could not, point to any additional factors that are at all material to measuring but-for trade costs for foreign exchange. BL Rebuttal, ¶¶66-72.

Second, Credit Suisse has not raised any *measurable* variables that could impact spreads. As discussed in Profs. Bjønnes and Ljungqvist’s rebuttal report, all key financial inputs are already considered in their existing model. While Underwood asserts that a “trader might

consider hundreds of constantly moving financial inputs from a multitude of markets,” Underwood Report, ¶38, Credit Suisse has not demonstrated that its purported factors would alter the conclusion of the regression analysis. Its suggestions are pure conjecture.

Even if Credit Suisse could point to measurable variables ignored by the Plaintiffs’ experts, which it has not, “[r]egression analyses are admissible even where they omit important variables so long as they account for the ‘major variables’ affecting a given analysis.” *Reed Constr. Data Inc. v. McGraw-Hill Cos., Inc.*, 49 F. Supp. 3d 385, 403 (S.D.N.Y. 2014), *aff’d*, 638 Fed. App’x 43 (2d Cir. 2016) (quoting *Bazemore*, 478 U.S. at 400 (Brennan, J., concurring)). For example, in *Bazemore*, the Supreme Court overturned the Fourth Circuit’s decision to exclude a regression analysis because it “did not include ‘all measurable variables thought to have an effect.’” *Id.* The Supreme Court found the Fourth Circuit’s exclusion on this basis was “plainly incorrect,” holding that “[w]hile the omission of variables from a regression analysis may render the analysis less probative than it otherwise might be, it can hardly be said, absent some other infirmity, that an analysis which accounts for the major factors ‘must be considered unacceptable as evidence.’” *Id.*; *see also Reed Constr. Data Inc.*, 49 F. Supp. 3d at 401 n.8 (noting that although “*Bazemore* was decided before *Daubert* . . . the Second Circuit has relied on it since.”). Thus, a court should not exclude a regression unless “a defendant challenging the validity of a multiple regression analysis [has made] a showing that the factors it contends ought to have been included would weaken the . . . analysis.” *Sobel*, 839 F.2d at 34. “‘Implicit in the *Bazemore* holding is the principle that a mere conjecture or assertion on the defendant’s part that some missing factor would explain the existing disparities . . . generally cannot defeat the inference . . . created by plaintiffs’ statistics.’” *Id.* (quoting *Palmer v. Schultz*, 815 F.2d 84, 101 (D.C. Cir. 1987)).



Here, Credit Suisse “did not show that, with these factors accounted for,” spreads would not have widened. *Sobel*, 839 F.2d at 34. Rather, Credit Suisse’s “experts simply criticized plaintiffs’ failure to include them, offering no reason, in evidence or analysis, for concluding that they” would undermine confidence in the result of the regression. *Id.* Where, as here, Credit Suisse has not shown “that such a variable was **required** in order for a statistical study to be valid,” the experts’ regression analysis should not be excluded. *Rossini v. Ogilvy & Mather, Inc.*, 798 F.2d 590, 604 (2d Cir. 1986).

Third, Credit Suisse raises a number of **unmeasurable** variables that it insists are relevant to estimating but-for spreads. These unmeasurable “trade-specific factors” include “a particular trader’s risk limits and risk perceptions on a particular day,” and “individual negotiations between class members and dealers.” Mot. at 44-45. But Credit Suisse admits that these factors are “not capable of modeling,” Mot. at 43, and Rule 702 does not require an expert to control for unmeasurable variables. On the contrary, “variables that cannot be measured cannot . . . be included in a regression analysis.” *Freeland v. AT&T Corp.*, 238 F.R.D. 130, 148 (S.D.N.Y. 2006) (citing *Reference Manual* at 188). Because “[n]ot all possible variables that might influence the dependent variable can be included if the analysis is to be successful; some cannot be measured, and others may make little difference,” *Reference Manual* at 314, courts have soundly rejected an approach to Rule 702 that would require experts to “disprov[e] the . . . significance” of “**unmeasurable** variables.” *E.E.O.C. v. Gen. Tel. Co. of Nw., Inc.*, 885 F.2d 575, 581 (9th Cir. 1989) (emphasis in original). As Profs. Bjønnes and Ljungqvist indicate, any purported unmeasured factors would be present in both the clean period and the class period, and therefore any effect on spreads would be a wash. BL Rebuttal, ¶65.

Where defendants were able to demonstrate that a subjective, qualitative factor could be “easily quantified” and “reasonably expected” to have a “dramatic effect” on a regression analysis, some courts have required an expert witness to use a “proxy” for such qualitative factors. *Freeland*, 238 F.R.D. at 148. Credit Suisse concedes that no such proxy variables are available here to control for an individual’s perception at the time of a trade. *See, e.g.*, Mot. at 43 (claiming that “trade-specific factors” are “not capable of modeling on an aggregate, classwide basis”). Kleidon makes no effort to show that the trade-specific factors he identifies – or their proxies – are quantifiable. And the only quantifiable metric identified by Ordover for trade-specific factors is “margin points,” which he claims are not suitable as a proxy variable. Ordover Rep., ¶35. Yet margin points are already accounted for in Profs. Bjønnes and Ljungqvist’s analysis. The model measures effective spreads based on the rate the customer actually paid, thus accounting for margin points on every trade. BL Rebuttal, ¶71. Credit Suisse has failed to raise any objections to the common factors’ analysis Profs. Bjønnes and Ljungqvist employ that would undermine the reliability of the model.

### **3. Credit Suisse’s Assertion that the Model Has Low Explanatory Power Does Not Render It Unreliable**

Credit Suisse attempts a statistical sleight-of-hand by arguing that Profs. Bjønnes and Ljungqvist’s model has too little “explanatory power” to be admissible because it has a low “R-squared” (“R<sup>2</sup>”). Mot. at 38. But Bjønnes and Ljungqvist’s model is not designed to *explain* with precision which factors influence spreads, but rather, the model aims to unabashedly *forecast* the effective costs of trades during the conspiracy period in the absence of the collusive conduct. This task – *forecasting* – is very different from what Credit Suisse is suggesting the model should do – *explaining*. As a model that seeks to forecast, rather than explain, Profs. Bjønnes and Ljungqvist’s model preforms very well.

The  $R^2$  is irrelevant to the question at issue. BL Rebuttal, ¶107. As one court noted, “any correlation between arsenic and death would have a vanishingly low  $R^2$  – a lot of things cause death – but that does not make a regression showing that arsenic causes death inaccurate.” *Castro v. Sanofi Pasteur Inc.*, 134 F. Supp. 3d 820, 834-35 (D.N.J. 2015). While other factors certainly affect spreads, Profs. Bjønnes and Ljungqvist have found, after controlling for all material common factors, substantial damage is consistent with the conclusion that the collusive conduct caused such damage. Credit Suisse provides no basis for excluding this statistically valid conclusion.

A “low  $R^2$  means little by itself.” *Id.* at 834. “ $R^2$  measures the percentage of variation from the statistically derived regression line.” *Id.* “Typically, an  $R^2$  is low in cross-sectional studies in which differences in individual behavior are explained,” particularly where “these individual differences are caused by many factors that cannot be measured.” *Reference Manual* at 345. Although in such circumstances an “expert cannot hope to explain most of the variation,” they can still come to statistically robust conclusions on the effect of certain variables. *Id.* Thus, “[a]s a general rule, courts should be reluctant to rely solely on a statistic such as  $R^2$  to choose one model over another.” *Id.* Further, lower  $R^2$  are particularly likely in cases with large sample sizes, as is the case here. *See, e.g.,* Jeffrey M. Wooldridge, *Introductory Econometrics: A Modern Approach* 199 (Cengage Learning 4th ed. 2009).

Although Credit Suisse claims that courts “routinely” exclude regressions that “perform far better” than Profs. Bjønnes and Ljungqvist’s analysis, it cites no case in which a court excluded a regression based on  $R^2$  or any other statistical metric alone.<sup>17</sup> Mot. at 38-39. To

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<sup>17</sup> Defendants’ reliance on *Reed v. Advocate Health Care*, is likewise misplaced, because in that case Plaintiffs’ expert relied on average wages to determine wage suppression experienced by plaintiffs. 263 F.R.D. 573,

argue that a low  $R^2$  requires exclusion from evidence under Rule 702, Credit Suisse relies on *Griffin v. Bd. of Regents of Regency Univs.*, a case decided before *Daubert* changed the law on admission of expert evidence. 795 F.2d 1281, 1291 (7th Cir. 1986). There, the Seventh Circuit rejected a regression analysis proffered to prove discrimination for two reasons: first, that the court was “reluctant to rely on a single regression analysis when other regressions could have been presented,” and second, that there were no proven instances of discrimination. *Id.* at 1292. n.23. The district court had not excluded the plaintiffs’ expert testimony under *Daubert*, or its predecessor, but at the merits phase found the plaintiffs’ evidence and economic model to be unpersuasive in proving discrimination. *Id.* at 1291. While the court found that  $R^2$  was one factor that can be considered in evaluating the reliability of statistical evidence, the Seventh Circuit specifically declined “to establish a particular predictive capability as a *sine qua non* for a model to pass muster.” *Id.* at 1291-92, n.23 (noting that “ $R^2$  alone cannot determine the validity of a model” and “sex discrimination may be present even though  $R^2$  is low.”); *see also Equal Emp’t Opportunity Comm’n & Bailey*, No. 10C6139, 2016 WL 5796890, at \*4 (N.D. Ill. Sept. 30, 2016) (finding that *Griffin* did not alter basic principle that “courts should be reluctant to rely solely on a statistic such as R-squared”); *Lyman v. St. Jude Med. S.C., Inc.*, 580 F. Supp. 2d 719, 725 (E.D. Wis. 2008) (rejecting *Daubert* challenge based on low  $R^2$ ). *Griffin* is distinguishable for numerous reasons including: the legal standard under *Daubert* is different than analyzing expert reports at the merits stage; Profs. Bjønnes and Ljungqvist’s model employs a plethora of

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591 (E.D. Ill. 2009). The court found that the reliance on averages was a “critical [] flaw” because it did not indicate whether a class member suffered harm from the alleged conspiracy. *Id.* at 590. The low predictive nature of the regression was an additional factor that the court considered in an already unreliable model. *Id.* at 593. Instead of calculating an overall damage figure and measuring impact by averaging total damages amongst class members, Profs. Bjønnes and Ljungqvist’s model measures the effective cost of each trade based on the application of common factors. That model, as described herein, provides robust results on a trade-by-trade basis.

common factors in a multiple regression analysis, in contract to the single regression in *Griffin*; Plaintiffs offer substantial evidence of collusion including nearly two dozen fines and guilty pleas based on Defendants' conduct on chat rooms; and Plaintiffs' model has numerous other indicia of reliability.

#### **4. Credit Suisse Uses Irrelevant Metrics to Attack the Regression Model**

Credit Suisse points to an irrelevant metric regarding the fraction of trades damaged to a statistically significant degree and suggests that because approximately half of *trades* were damaged, the model is no better than a coin flip. Mot. at 40-41. These approaches attempt to exploit a binary that ignores the precision of the respective estimates, as Profs. Bjønnes and Ljungqvist's rebuttal report reflects, Plaintiffs can demonstrate that 93.4% of class members experienced significant injury on at least one trade at 95% confidence. BL Rebuttal, ¶140. Whether an expert's model demonstrates injury depends on the number of impacted *class members*, not the number of impacted *transactions*. See *In re Commodity Exch., Inc.*, 213 F. Supp. 3d 631, 672 n.36 (S.D.N.Y. 2016). Indeed, a single overcharge is sufficient to show injury to a particular plaintiff under the Sherman Act. *Air Cargo*, 2014 WL 7882100, at \*45). Further, the model's ability to identify each trade with negative damages supports rather than detracts from its reliability.

#### **5. Liquidity Provider Trades Are Not a Basis for Excluding the Model**

Heeding Credit Suisse's critique regarding liquidity-providing trades, Mot. at 39-40, Profs. Bjønnes and Ljungqvist have refined their model to control for and exclude any trades where a class member might have provided liquidity to a Defendant. Profs. Bjønnes and Ljungqvist have adopted the basic features of Dr. Ordovery's definition of a liquidity providing trade, and flagged any trades in which a class member bought currency for a price lower than the prevailing midprice, or sold currency for a price higher than the prevailing midprice in an effort

to be particularly conservative in excluding these trades. Such refinements to an expert's model would be expected in the academic process, were Profs. Bjønnes and Ljungqvist's model up for peer review. It is equally appropriate in the context of an antitrust case for experts to refine models in response to defendants' critiques. Such refinements do not undermine the model's reliability.

#### **6. Bjønnes and Ljungqvist Use a Reliable Statistical Methodology to Estimate Booking Lags**

Credit Suisse attacks Profs. Bjønnes and Ljungqvist's report for addressing "booking lags" by "making assumptions that standardize the time lag for particular currencies at particular banks." Mot. at 45. For voice trades, there is a time lag between when a trade was executed and the time that it was booked into the Defendants' systems. [REDACTED], and to account for this gap, Profs. Bjønnes and Ljungqvist use a well-established statistical methodology to estimate the time lag. BL Rebuttal at ¶114. The result of using this statistical estimation across the entire database does not introduce any bias, as Dr. Kleidon admitted in his deposition.<sup>18</sup> In other words, while the booking lag on an individual trade is an estimate, the estimation does not result in higher or lower damage estimates overall.

The estimation methodology is similar to the method the Supreme Court approved of in *Tyson Foods v. Bouaphakeo*, 577 U.S. 136 S. Ct. 1036, 1049 (2016). There, plaintiffs' experts used a representative sample to statistically fill in gaps in the defendant's data, similar to Profs. Bjønnes and Ljungqvist's statistical methodology used to fill in the gap of inaccurate transaction time stamps. *See id.* at 1046-47 (noting that because "each class member could have relied on that sample to establish liability if he or she had brought an individual action," the expert's

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<sup>18</sup> Kleidon Dep. 79:1-3.

calculation of average donning and doffing times was also “a permissible means of making that very showing” in the class action).

Further, Credit Suisse’s criticisms cannot render the model inadmissible because “contentions that the assumptions are unfounded go to the weight, not the admissibility, of the testimony.” *In re: Gen. Motors LLC Ignition Switch Litig.*, No. 14-MD-2543 (JMF), 2015 WL 9480448, at \*1 (S.D.N.Y. Dec. 29, 2015); *see also Boucher v. U.S. Suzuki Motor Corp.*, 73 F.3d 18, 21 (2d Cir. 1996). “‘Unless the information or assumptions that plaintiff’s expert [ ] relied on were ‘so unrealistic and contradictory as to suggest bad faith,’ inaccuracies in the underlying assumptions or facts do not generally render an expert’s testimony inadmissible.’” *Washington v. Kellwood Co.*, 105 F. Supp. 3d 293, 306 (S.D.N.Y. 2015) (quoting *R.F.M.A.S., Inc. v. So*, 748 F. Supp. 2d 244, 269 (S.D.N.Y. 2010)). Instead, the “appropriate means” of challenging the assumptions ‘underlying evidence is “not exclusion, but rather [v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof.’” *Gen. Motors*, 2015 WL 9480448, at \*1 (quoting *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 596 (1993)).

**D. Professors Bjønnes and Ljungqvist’s Opinions Are Not Reliant on Dr. Singer or Mr. Poynder**

Credit Suisse suggests that Profs. Bjønnes and Ljungqvist’s Report must be excluded because it relies on the conclusions of Dr. Singer and Mr. Poynder. Mot. at 31-32. This assertion is simply untenable. Credit Suisse can only cite to the fact that Profs. Bjønnes and Ljungqvist were instructed to assume the existence of collusion, and that their assumption was supported by their review of Mr. Poynder’s report. Mot. at 32. Profs. Bjønnes and Ljungqvist’s report is offered for the purpose of establishing that impact and damages can be measured on a class-wide basis using a common formula. Profs. Bjønnes and Ljungqvist were *instructed by*

*counsel* to assume that Defendants’ sharing of sensitive competitive information constituted an unlawful conspiracy in violation of the Sherman Act.<sup>19</sup> BL Report, ¶21. Their model does not depend, in any way, on any finding made by Dr. Singer or Poynder or any determination that a particular act is collusive. Rather, the existence of widespread evidence of collusion provides an additional robustness check to the model. Thus, Mr. Poynder’s report demonstrating the pervasiveness of collusive activity, and Dr. Singer’s report demonstrating the widening of spreads on average, both lend additional support to Plaintiff’s theory of liability, but each report stands on its own.

## **II. MR. POYNDER’S OPINIONS REGARDING SENSITIVE COMPETITIVE INFORMATION ARE RELIABLE AND RELEVANT**

Credit Suisse’s arguments for excluding Mr. Poynder mischaracterize his methodology, findings, and deposition testimony. At best, Credit Suisse has identified a small number of errors that go to weight rather than admissibility. It does not undermine the reliability of Poynder’s analysis or the inferences that the Court can draw from his findings.

### **A. Poynder’s Analysis of Bank Chats**

Robin Poynder has more than 35 years of FX-related experience, including more than 17 years as a market-maker in FX spot. Poynder Report, ¶6 & App’x. This is his first-ever engagement as a litigation expert. Having spent most of his career in the global center of the FX market – London – Poynder is fluent in the specialized, technical, and slang-ridden language of FX trading that originated there. *Id.*, ¶¶7, 39-48. Class Counsel retained Poynder, in part, to

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<sup>19</sup> They were so instructed because courts in this district have excluded portions of expert reports which formed a legal conclusion. *Donellan v. Ferag, Inc.*, 26 Fed. Appx. 72, 75 (2d Cir. 2002) (“This Circuit requires the exclusion of expert testimony that expresses a legal conclusion.”).



help translate the content of Defendants’ communications in multibank chatrooms and to ascertain whether and how often Defendants exchanged certain types of information.

Poynder’s assignment was to identify exchanges of “pricing, order, or customer information that FX traders at other banks could plausibly exploit to their advantage, to their customers’ disadvantage, or both – as distinguished from generalized commentary or ‘market colour.’” *Id.*, ¶2. Using his extensive and unchallenged market expertise, Poynder determined that “three broad categories of information” fit that description: “(1) information concerning spreads; (2) information concerning open orders; and (3) information concerning customer identity.” *Id.*, ¶56. As Poynder explained in his report, those were the three categories of information that he looked for and recorded when reviewing chatroom transcripts. *Id.* He decided to label information falling into these three categories as Sensitive Competitive Information (“SCI”). *Id.*, ¶¶2, 55.

Because Defendants produced millions of chat room transcripts from the six+ years of the Class Period, it was not practical for Poynder to review and categorize them all. Accordingly, another Plaintiffs’ expert, Dr. Hal Singer, developed a methodology for selecting a random sample of 91 trading days that would allow reliable inferences to be drawn about the frequency and consistency of Defendants’ SCI exchanges throughout the Class Period. *Id.*, ¶49. Adhering to Singer’s instructions, Poynder drew the random sample, received all then-available documents falling on the 91 sample days from Class Counsel, and with the help of his team, reviewed nearly 40,000 chat room transcripts. *Id.*, ¶¶49-51.

Poynder himself ultimately made the call on whether a transcript contained SCI. *Id.*, ¶¶53, 55. If it did, he recorded the following data: “date, Defendants involved, currencies involved, and categories of information exchanged.” *Id.*, ¶55. Poynder found that two or more

Defendants exchanged SCI about 76 distinct currency pairs in 1,546 separate chat room transcripts covering 90 of the 91 sample days. *Id.*, ¶4. Poynder aggregated the separate number of SCI exchanges within each transcript and found 8,496 of them.<sup>20</sup> *Id.*

Poynder explained that the concept of “spread” was not necessarily limited to the nominal spread between the bid and ask prices quoted to Class Members. *Id.*, ¶23. “A more precise measure of the market-maker’s compensation and the customer’s transaction cost is the ‘effective’ half-spread, which refers to the difference between the customer’s execution price and a neutral mid-market price – *i.e.*, the midpoint between the top-of-book bid and ask prices on EBS or Reuters.” *Id.*, ¶24. “That is because . . . a market-maker can quote a two-way price that is skewed up or down away from the market midpoint in anticipation of price changes or the direction in which a customer will trade, thus effectively increasing the customer’s price of liquidity/transaction cost while maintaining the same apparent spread.” *Id.*<sup>21</sup> Poynder then went on to explain and illustrate in detail how each of the three categories that he labeled as SCI could be used by market-makers to increase the effective half-spreads – *i.e.*, the transaction costs – that Class Members paid for their FX trades during the Class Period. *See id.*, ¶¶57-107.

**B. Poynder’s Decision to Label Certain Categories of Information as SCI Was Informed by His Extensive Experience in the FX Industry**

Credit Suisse’s two lead arguments for exclusion are built upon its mischaracterization of the concept of SCI and how Poynder used it in his report and deposition. A simple review of Poynder’s report and deposition testimony exposes these arguments as straw men.

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<sup>20</sup> An SCI exchange refers to the number of spreads, the number of orders, or the number of customer IDs about which information was exchanged – not necessarily the number of discrete conversations about SCI separated by conversations about other topics.

<sup>21</sup> In referring to spreads throughout his report, Poynder “intend[ed] to include within the meaning of that term the concept of the ‘effective’ half-spread.” *Id.*

As noted above, Poynder’s report explains that he was asked by Class Counsel to translate chats and identify exchanges of pricing, order, or customer information that FX traders at other banks could plausibly exploit. *Id.*, ¶2. Relying on his extensive FX market expertise, Poynder determined that there were three categories of such information, and those were the three categories he looked for from the start of his review. *Id.* at 56.

As Poynder explained at his deposition, “In terms of putting together the analysis, I was looking for instances of the sharing of particular types of information, *which I then called as a group term*[] sensitive competitive information. Notably spreads, orders and client IDs.” Poynder Dep. at 132:11-16. Poynder further explained, “The definition [SCI] was something I came up with through the process of doing the analysis to *arrive at a convenient term* that would encompass the various kinds of information that I was observing there.” *Id.* at 134:14-18.

Notwithstanding Credit Suisse’s claim to the contrary (Mot. at 9), the latter testimony is not an “admission” that the term SCI “and its definition” is “completely new” and “made up by Poynder.” [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] p.22 [REDACTED]

[REDACTED]

[REDACTED]

As far as the three categories of information he labeled as SCI, Poynder explained that “sharing non-public information falling into each of these categories with competitors is contrary

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<sup>22</sup> Poynder Report, ¶2 n.1 (quoting CS-FXLIT-00000023 at 24).

to the ACI Model Code, which during the Class Period was recognised as the only global Code of Conduct applicable to the FX market.” Poynder Report, ¶56, n.16.<sup>23</sup> Moreover, the FX Global Code – a code adopted in 2017 after the Class Period, which Credit Suisse tries to apply retroactively as the industry standard by which chats should be assessed – specifically identifies spread, order, and client information as “Confidential Information” that should not be shared outside of a market-making bank.<sup>24</sup> Poynder’s report also cited Deutsche Bank’s [REDACTED]

[REDACTED]<sup>25</sup>

Credit Suisse cites the same deposition testimony to make (Mot. at 10) another unsupported assertion: that Poynder only decided what his review would be looking for after he had already found it in the chats, and that Poynder thus “work[ed] backwards to achieve a preordained conclusion.” On the contrary, Poynder merely explained that it was during his review that he decided to use the term “SCI” to refer to spreads, open orders, and customer IDs. That fact does not support Credit Suisse’s argument, which conflates the shorthand descriptor “SCI” with the three categories of information it refers to. The shorthand descriptor has nothing to do with Poynder’s review methodology. *See Iconics, Inc. v. Massaro*, 266 F. Supp. 3d 461, 474 (D. Mass. 2017) (“minor quibbles over word choice” do not support exclusion). Poynder’s report clearly describes (¶56) the three categories of information that he looked for *from the start*

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<sup>23</sup> The 2009 ACI Model Code, for example, explained that market-makers “are often entrusted with proprietary and materially price-sensitive information” by their clients, and therefore “they should not disclose or discuss any information relating to deals transacted, or in the process of being transacted, or in the process of being arranged, except to or with the counterparties involved.” Poynder Report, ¶56 n.16. Poynder testified that, in deciding what categories of information he would treat as SCI, he “was informed by the ACI [ ] Model Code.” Poynder Dep. at 135:8-22.

<sup>24</sup> FX Global Code at 23-24, 26 (prohibiting external sharing of “details of a Market Participant’s order book,” “spread matrices,” and “orders for benchmark fixes”), at 26 (prohibiting external sharing of “Client names, other mechanisms for communicating a Client’s identity or trading patterns”).

<sup>25</sup> Poynder Report, ¶103 n.38 (citing DB-0940487).

of his review, which he confirmed in deposition testimony that Credit Suisse chose not to cite.<sup>26</sup> That is not working backwards.

Credit Suisse also makes the irrelevant claim (Mot. at 10) that “Poynder’s definition and methodology are [not] accepted in the relevant scientific community and have not ‘been subjected to peer review and publication.’” There is no “relevant scientific community,” and no peer-reviewed publications have ever tackled the subject of interpreting FX trader lingo. Rule 702 does not require such a community to make expert testimony admissible. *See, e.g., Scott v. Chipotle Mexican Grill, Inc.*, 315 F.R.D. 33, 43 (S.D.N.Y. 2016) (“If the expert’s testimony does not rest on traditional scientific methods, the court may permit testimony ‘where a proposed expert witness bases her testimony on practical experience rather than scientific analysis.’”); Advisory Committee Notes, 2000 Amendment, Fed. R. Evid. 702 (“In certain fields, experience is the predominant, if not sole, basis for a great deal of reliable expert testimony.”).

Poynder relies on his 35+ years of industry experience to opine that spread, open order, and customer ID information obtained from competitors could be used by market-making traders to their advantage or to their customers’ disadvantage. He relies on the same industry experience to translate and interpret highly technical and slang-ridden chats to determine whether such information was in fact exchanged. *Cf. Scott*, 315 F.R.D. at 45 (“An expert . . . may offer commentary on documents in evidence if the expert’s testimony relates to . . . ‘defining any complex or specialized terminology, or drawing inferences that would not be apparent without the benefit of experience or specialized knowledge.’”); *In re Blech Sec. Litig.*, No. 94 Civ. 7696 (RWS), 2003 WL 1610775, at \*19 (S.D.N.Y. Mar. 26, 2003) (it is “proper testimony . . . for an

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<sup>26</sup> *See* Poynder Dep. at 132:11-16. *See also* Poynder Report, ¶74 n.24 (“Where a particular chatroom transcript or email contained multiple exchanges of [SCI] falling into one of the three categories I focused on, I recorded each instance separately in my category count.”).

expert familiar with the market to explain terms and practices that a lay jury would not understand”). Courts routinely permit experts to offer testimony based on their industry experience. *See, e.g., Crowley v. Chait*, 322 F. Supp. 2d 530, 540-41 (D.N.J. 2004) (“For a case of this magnitude, it seems eminently reasonable to ask two highly experienced, well-credentialed, accomplished . . . professionals with [relevant] experience to examine a sample of files and provide their expert opinion to a factfinder.”). Credit Suisse does not challenge Poynder’s qualifications or experience in FX trading.

**C. The Categories of Information that Poynder Considered to Be SCI Are Clear and Objective**

Credit Suisse’s second argument is also based on its mischaracterization of the SCI concept. Credit Suisse claims (Mot. at 10-11) that, because Poynder was asked to identify information that FX traders at other banks *could plausibly* exploit to their advantage or their customers’ disadvantage, that “leaves the determination of what is ‘plausible,’ and what traders ‘could plausibly exploit,’ entirely to Poynder himself, unguided by any objective criteria.” Credit Suisse again conflates Poynder’s description of his general assignment from Class Counsel with the three categories of information that Poynder actually looked for during his review. Poynder did not make *ad hoc* assessments; he interpreted the content of each chat to assess whether it contained the exchange of one of the three categories of information that he had already determined to be capable of exploitation. Poynder Reply Report, ¶¶24-30.

Moreover, Credit Suisse has not even bothered to explain what is vague or subjective about the categories of spreads, open orders, or customer identity. Credit Suisse’s own FX industry expert, Keith Underwood, reviewed Poynder’s report and the chats containing SCI. And although he disagreed with Poynder about whether certain chats contained SCI exchanges, he did not assert that he found Poynder’s review criteria to be vague or subjective. Indeed,

Underwood essentially belied such a conclusion by performing an independent review of the chats that Poynder identified as containing SCI in the category of spreads. Underwood's analysis found 523 instances of spread sharing, whereas Poynder found 522. *Id.*, ¶94 (citing Underwood backup file "database.xlsx").

That Credit Suisse identified a small number of chats where Poynder's counts did not appear to exactly match the content of the transcript does not undermine the reliability of Poynder's review methodology. When presented with several examples at his deposition, Poynder conceded the apparent discrepancies. But a few examples of errors out of thousands of findings do not undermine the reliability of Poynder's review process. *Cf. Crowley*, 322 F. Supp. 2d at 540 ("*Daubert* does not require that an expert's testimony be excluded simply because he admitted and corrected his own mistakes."); *Amorgianos*, 303 F.3d at 267 ("The judge should only exclude the evidence if the flaw is large enough that the expert lacks 'good grounds' for his or her conclusions.").

Besides, the deposition examples (Mot. at 11) are not compelling. Poynder correctly identified each example as containing one or more exchanges of SCI. He simply either slightly under counted (nine instead of 10) or over counted (eight instead of seven) in a tiny amount of the overall sample. The other examples Credit Suisse cites (*Id.* at 12-13) (e.g., slightly different SCI counts on duplicate chats) fall into the same category. These are minor errors in execution, not methodology, and they amount to less than 0.1% of Poynder's 8,000-plus SCI findings across the 91 sample days. *See SR Int'l Bus. Ins. Co. v. World Trade Ctr. Props., LLC*, 467 F.3d 107, 134 (2d Cir. 2006) ("To the extent that there are gaps or inconsistencies in [the expert's] testimony, those issues 'go to the weight of the evidence, not to its admissibility.'"); *U.S. v. Pettway*, No. 12-CR-103S (1), (2), 2016 WL 6134493, at \*2 (W.D.N.Y. Oct. 21, 2016).

(“[C]hallenges to reliability and assertions of factual error in the application of a given methodology go to the weight of the evidence, not to admissibility.”).

**D. The Relatively Few Errors in Poynder’s Findings Do Not Undermine the Reliability of His Analysis**

After pointing out various minor errors that it was able to identify in the five months it had to pore over Poynder’s findings, Credit Suisse claims (Mot. at 14) that his unspecified error rate is nevertheless sufficiently high to render Poynder’s entire analysis unreliable. But the error rate is not high. After receiving all of the critiques from Credit Suisse and its experts, Poynder went back and re-reviewed the chats that were implicated, which caused him to remove roughly 1.2% of his original SCI findings. Poynder Reply Report, ¶1. Poynder then took it upon himself to perform additional validations to determine whether the issues raised by Credit Suisse extended beyond the specific chats that Credit Suisse identified. That, in turn, caused Poynder to remove roughly 3% more of his original findings. *Id.*, ¶2. *See Crowley*, 322 F. Supp. 2d at 540 (“There is no stigma attached to such error correction, nor should there be. If anything, it strengthens the quality of the expert report.”).

The two issues that led to the most changes concerned Poynder’s inadvertent review of 16 chats produced by different Defendants that turned out to be duplicates (88 findings removed), and Poynder’s inadvertent straying outside the 24 hours of the relevant sample day as indicated by the time-stamps on multi-day chatroom transcripts (253 findings and 41 chats removed). These two mistakes in reviewing materials that should have been filtered out have nothing to do with the reliability of Poynder’s assessment and categorization of SCI –in other words, they are not “false positives.” Such human errors in document filtering do nothing to undermine the roughly 96% of Poynder’s findings that remain; indeed, they are to be expected in a manual review of 37,890 documents consisting of nearly 400,000 pages. *Cf. U.S. v. Williams*,



No. CR 05-920, 2008 WL 5382264, at \*16–\*17 (C.D. Cal. Dec. 23, 2008) (“Human error . . . might only render the evidence inadmissible ‘if the methodology was so altered by a deficient application as to skew the methodology itself.’”).

Tellingly, the example that Credit Suisse cites as being emblematic of Poynder’s analysis being “riddled with, and prone to, errors,” was not even incorrectly categorized as SCI. Credit Suisse (Mot. at 14-15) chastises Poynder for what it claims was his error in categorizing an exchange about weight loss as SCI. But compare the chat excerpt presented by Credit Suisse in its Memorandum with the chat excerpt that Poynder recorded in his workpapers.

[illegible]

In fact, what Poynder categorized as the single instance of live order SCI in this chat is the statement that the trader was “[REDACTED].” Poynder Reply Report, ¶67.<sup>27</sup>

<sup>27</sup> As Poynder explains in his reply report, he did so for the following reason:

Although Poynder concedes that the currency pairs for this finding were misrecorded,<sup>28</sup> it was not the calamity that Credit Suisse describes. The phrase “[REDACTED]” appears to have been included in Poynder’s workpapers due to copying and pasting an overbroad excerpt, some of which was subsequently cleaned up but several sentences of which were not. *Id.*, ¶66.

Perhaps the best evidence that Poynder’s methodology and results are reliable is that Credit Suisse’s FX expert, Underwood, takes issue with only a small fraction of the chats that Poynder found to contain SCI exchanges. Underwood was asked “to identify chats that were not supportive [of] Mr. Poynder’s theories” and “put them in [his] report.” Underwood Dep. at 211:6-9. He reviewed every one of these 1,546 chats (*id.* at 57:10-15), but his report only raises disputes with 39 of them. *See* Underwood Report, Chat Appendix. Had Underwood identified more purported errors, he presumably would have reported them.<sup>29</sup>

In all events, above a certain minimum threshold, the precise number of SCI exchanges either during the 91 sample days or during the Class Period is immaterial to the issues the Court must resolve at class certification – and even to the issue of whether a conspiracy existed. Poynder adopted a conservative approach that tended to undercount, rather than overcount, Defendants’ sharing of information that could be used to impact FX prices. Poynder Reply

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[REDACTED] Poynder Reply Report, ¶67.

<sup>28</sup> Poynder concedes that the relevant currency pairs were misrecorded to include those that were not the subject of SCI sharing, and that the statement “[REDACTED]”. Poynder Reply Report, ¶67 n.36.

<sup>29</sup> In most instances, the disputes that Underwood raises are not actually disputes about the validity of Poynder’s categorization of chats as containing SCI. Rather, Underwood offers justifications or alternative explanations (other than conspiracy) for why SCI might have been shared among competitors — *e.g.*, trader inexperience or demanding customers.

Report, ¶¶10-12.<sup>30</sup> Since Poynder began his initial review, thousands more chat room transcripts falling on the 91 sample days have been produced, which has extended SCI sharing to all 91 days and increased Poynder’s SCI counts by nearly 5,000. *Id.*, ¶4. But perhaps most importantly, neither Poynder, Plaintiffs’ other experts, or Plaintiffs themselves rely on Poynder’s precise SCI counts to make any specific assertions other than they were sufficiently frequent and consistent to support class certification of Plaintiffs’ conspiracy claims and the class-wide impact and damages theories of Plaintiffs’ economists. Even conceding that a small percentage (<5%) of Poynder’s initial SCI findings were in error, the Court can still use the results of Poynder’s analysis to reliably draw the inferences necessary to resolve Plaintiffs’ motion for class certification.

**E. Any “Skew” in the Available Chatroom Transcripts Is Irrelevant to, and Does Not Undermine, Poynder’s Opinions**

Credit Suisse next argues (Mot. at 16-17) that Poynder “failed to recognize that his data set was skewed to create a disproportionate number of instances of SCI-sharing in chats involving Credit Suisse” – presumably implying that, because Credit Suisse produced more documents, the relative rates of other Defendants’ SCI exchanges were actually higher than Poynder’s findings suggest. Credit Suisse’s argument ignores the multi-bank nature of the chats, which reflect the identities of the participating banks regardless of which Defendant produced the transcript. Poynder Reply Report, ¶21. But none of this even matters.

Neither Plaintiffs, nor Poynder, nor any of Plaintiffs’ other experts offered any opinions based on the relative frequency of Credit Suisse’s participation in chats exchanging SCI. Indeed, the relative frequency of participation is irrelevant to both Credit Suisse’s liability as a co-

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<sup>30</sup> Poynder also could not count Defendants’ exchanges of SCI by phone or text message, which were likely frequent. Poynder Reply Report, ¶10.

conspirator and its joint and several liability for all damages caused by the conspiracy. *See* Class Cert. Reply at §IIA. Thus, even if the chats Poynder reviewed were “skewed” towards those that Credit Suisse participated in, that would have no impact on the reliability of Poynder’s analysis, as Poynder, unlike Defendants’ industry expert, does not seek to opine on the existence of a conspiracy or its participants.

#### **F. Poynder’s Findings Are Relevant to the Issues Before the Court**

Credit Suisse’s final argument for excluding Poynder (Mot. at 18) is that his analysis and conclusions “are essentially devoid of any probative value to this case.”<sup>31</sup> Credit Suisse is wrong and apparently forgets that this case is at the class-certification stage. Poynder’s analysis and findings are relevant for two independently sufficient reasons: (1) they will help the Court to determine whether the existence of the conspiracy that Plaintiffs allege, as well as Credit Suisse’s participation in that conspiracy, can be established using common evidence; and (2) they will help the Court to determine whether common evidence exists to support the economic mechanism underlying Plaintiffs’ theory of class-wide impact and damages.

Credit Suisse does not even address the first issue. Poynder’s analysis of common evidence and his findings that SCI was shared frequently and consistently throughout the Class Period is obviously relevant to the issue of whether Plaintiffs’ alleged conspiracy can be established using common evidence. Credit Suisse may disagree with whether the evidence is sufficient to establish the conspiracy, but it cannot dispute that it is common. It also cannot reasonably dispute that Poynder’s findings are relevant to the existence of the conspiracy, and Credit Suisse’s participation in it, as a merits question.

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<sup>31</sup> As to Mr. Poynder’s analysis, Credit Suisse’s argument is belied by Dr. Ordovery, who acknowledged that Mr. Poynder’s analysis “was able to translate whatever those guys were talking into something that you and I can possibly understand.” Ordovery Dep. at 130:5-9.

Contrary to Credit Suisse’s assertion (Mot. at 18-19), the fact that Poynder was not asked to, and so did not, record the presence of non-Defendants in chat rooms containing SCI has zero bearing on the relevance of his analysis. Moreover, the presence of certain non-Defendants in the chats exchanging SCI does not undermine the “information asymmetry” theory underlying Plaintiffs’ model of class-wide impact and damages. As Poynder explains in his reply report, Defendants that exchanged SCI in the presence of non-Defendants “would still have an information advantage over the broader market; they just might not have an information advantage over the non-Defendant participant in the chat with respect to that *particular bit* of SCI.” Poynder Reply Report, ¶60 (emphasis in original).

Underwood’s independent analysis shows that, of the 24 non-Defendants that appeared in chats sharing spread SCI, all but four were other banks – many of them market-makers. *Id.*, ¶96. That Plaintiffs only named the 16 Defendants in this case does not mean there were not other co-conspirators with lesser roles. Underwood’s findings have no impact on the “information asymmetry” applicable to “the thousands of other market participants, most notably buy-side customers, that did not participate in [a] specific chat (or any chats period).” *Id.*, ¶60. Nor does “the occasional presence of a non-Defendant in a chat exchanging SCI . . . in any way diminish the systematic informational advantage that Defendants gained over the broader market by continuously and frequently exchanging SCI with each other throughout the Class Period.” *Id.* In any event, the presence of non-Defendants in certain chats does not undermine the relevance of Poynder’s findings with respect to the named Defendants.

Even less persuasive is Credit Suisse’s argument (Mot. at 19-20) that Poynder’s report is irrelevant and inadmissible because he does not opine on whether chats sharing SCI violated industry standards or were otherwise improper. Poynder did not offer these merits opinions

because he was not asked to at the class certification stage. *Id.*, ¶17. Putting aside their prematurity, such opinions would not necessarily be relevant to Credit Suisse’s liability under the antitrust laws for a price-fixing conspiracy. And even if they were, the potential relevance of opinions that Poynder did not proffer has no bearing on the relevance of the analysis and findings that he did proffer.

Credit Suisse’s final argument for exclusion (Mot. at 20-21) – that Plaintiffs are “greatly overselling the relevance of Poynder’s Chat Report to their current theory of the case” – can be dismissed out of hand. If expert evidence is at all relevant, then it is admissible regardless of how relevant it is. *See* Fed. R. Evid. 401(a) (evidence is relevant if “it has *any tendency* to make a fact more or less probable than it would be without the evidence”).

### **III. SINGER’S OPINIONS ARE RELIABLE AND RELEVANT**

Dr. Singer, an expert in antitrust economics with significant experience in antitrust class action litigation, offered several opinions in this case, all of which were achieved using a reliable methodology. First, Dr. Singer analyzed the FX market using factors set forth by the DOJ as being “conditions favorable to collusion” and found that FX trading is characterized by conditions conducive to collusion. *See* Singer Report, ¶¶4, 19-33.

Second, Dr. Singer performed a statistical analysis of Poynder’s SCI results and found that the sharing of SCI was pervasive in a statistical sense by having occurred on almost all trading days within the Class Period. *See* Singer Report, ¶¶4, 34-38.

Third, Dr. Singer performed two regressions using standard econometric methods for proving class-wide impact that have been accepted in antitrust litigation. The regressions were used to determine whether bid-ask spreads on interbank platforms were wider during the Class Period (implying higher ask prices and lower bid prices) and whether prices on interbank platforms were predictive of class member prices. Dr. Singer’s first regression tested for

differences between the bid-ask spreads quoted on an electronic interbank trading platform called EBS before and after the Class Period (the “EBS Regression”). After controlling for scores of factors that may influence spreads, he found that interbank spreads narrowed after the end of the Class Period, indicating that more competitive pricing occurred after the challenged conduct was eliminated. Dr. Singer’s second regression demonstrates that interbank EBS prices are highly correlated with and explain the vast majority of variation in class member prices; his Engle-Granger tests also demonstrate that EBS prices are cointegrated with class member prices (the “Cointegration Regression”). Combined, the two findings indicate that the conduct alleged by Plaintiffs is statistically associated with inferior performance of the FX market for all or nearly all class members. *See* Singer Report, ¶¶4, 39-56.

**A. Dr. Singer Reliably Relied on Mr. Poynder’s Identification of SCI**

Credit Suisse’s claim that Dr. Singer’s opinions must be excluded because they depend entirely upon Poynder’s allegedly unreliable analysis fails because, as demonstrated in Section II, *supra*, Poynder’s methodology and conclusions are helpful, relevant, and reliable. *In re LIBOR-Based Fin. Instruments Antitrust Litig.*, 299 F. Supp. 3d 430, 494 (S.D.N.Y. 2018) (“To be sure, an expert may rely on the admissible opinions of another expert.”). Dr. Singer applied his own expertise in statistics to extrapolate Poynder’s results to the broader pool of information. This is common in civil litigation.

Credit Suisse and its sampling expert (Justin McCrary) incorrectly argue that Dr. Singer’s methodology is unreliable because he failed to account for any measurement error in Poynder’s process. First, there is virtually no chance as a matter of statistics that any minor errors in Poynder’s work product could overturn Dr. Singer’s finding of pervasive SCI sharing. Because Mr. Poynder identified on average over 93 instances of SCI sharing per trading day, he would had to have made on average 93 consecutive errors to potentially impact Dr. Singer’s overall

conclusion. The chances that happened are, by any meaningful statistical measure, equal to zero (a probability equal to 0.25 to the 93rd power). *See* Singer Reply Report, ¶39. Credit Suisse fails to show that accounting for measurement error would have made a bit of difference, and Dr. Singer’s analysis can hardly be deemed unreliable for his declining to engage in a pointless exercise.

Second, Credit Suisse vastly overstates the consequences of measurement error. One authority that Dr. McCrary cites says that “the consequences of ignoring measurement error” can be “nonexistent” (as demonstrated in the preceding paragraph) and “the majority of researchers do not account for measurement error, even if they are aware of its presence and potential impact.”<sup>32</sup>

Third, Dr. McCrary frequently ignores measurement error in his published, peer-reviewed work.<sup>33</sup> Dr. McCrary also did not account for measurement error in his consulting work in *Nat’l Credit Union Admin. Bd. v. RBS Sec., Inc.*, No. 11-2340-JWL (D. Kan.) a §§11-12 Securities Act misrepresentation case about residential mortgage-backed securities. In that case, securities underwriter RBS attempted to establish a due diligence defense based on re-underwriting it performed on a non-random sample of loans. Dr. McCrary concluded that RBS could draw reliable inferences and conclusions about the overall loan pool based on a non-random sample, without performing statistical tests, and without mathematical precision. *See*

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<sup>32</sup> John Buonaccorsi, MEASUREMENT ERROR: MODELS, METHODS, AND APPLICATIONS (Chapman & Hall/CRC 2010) at xix; McCrary Report, ¶¶24 n.29, 77 n.139. Dr. McCrary (¶23 n.28) cites Buonaccorsi at 14-15 to support the proposition that the presence of measurement error in binary determinations “virtually always renders rate estimates biased and unreliable.” Buonaccorsi, however, does not even remotely establish that alleged principle.

<sup>33</sup> Singer Reply, ¶¶30 (discussing Justin McCrary and Heather Royer, *The Effect of Female Education on Fertility and Infant Health: Evidence from School Entry Policies Using Exact Date of Birth*, 100 AMERICAN ECONOMIC REVIEW 158-195 (2011). Justin McCrary & Tamara Lave, *Do Sexually Violent Predator Laws Violate Double Jeopardy or Substantive Due Process? An Empirical Inquiry*, 78 BROOKLYN LAW REVIEW 1391 (2013)).



Singer Reply Report, ¶¶31-32. Dr. McCrary did not account for measurement error, and he took RBS's allegedly subjective judgment as a given. *See generally id.*; *see also* McCrary Dep. at 319:2-320:5, 375:21-376:13.<sup>34</sup> Dr. McCrary stands by his RBS opinions today. McCrary Dep. at 305:24-306:2, 340:7-11. Clearly, Credit Suisse's own expert does not believe that statistical principles require measurement error to be accounted for in every sampling case.<sup>35</sup>

In any event, any purported failure to account for measurement error goes to the weight of Dr. Singer's opinions and not to its admissibility. *In re Gabapentin Patent Litig.*, MDL No. 1384, 2011 WL 12516763, at \*10 (D.N.J. Apr. 8, 2011) (denying *Daubert* challenge to expert who purportedly failed to account for measurement error, deeming this a battle of the experts issue that was suitable for cross-examination).

#### **B. Dr. Singer Reliably Concludes that Sharing of SCI Was Pervasive**

Credit Suisse argues (Mot. at 24) that Dr. Singer's definition of "pervasive" is unreliable because it could theoretically apply to only 90 total SCI exchanges between two Defendants about one exotic currency pair. This hypothetical is a mere distraction and bears no resemblance to reality. Poynder initially found **8,496** instances of SCI sharing between all 16 Defendants about 76 distinct currency pairs in 1,546 separate chat room transcripts on 90 of 91 sampled days, an average of 93 SCI exchanges per trading day. *See* Poynder Report, ¶¶4, 108, 112; Singer Report, ¶34. And the evidence shows that the illegal activity centered on the most widely traded currency pairs in the world. *See* Poynder Report, Appx. 4. As noted earlier, those totals

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<sup>34</sup> Dr. McCrary also criticizes Dr. Singer for using a 5.4% statistically significant rate instead of what he claims to be the most common level used in the sciences of 5%. *See* McCrary Report, ¶19 n.20. But, in *NCUA v. RBS*, Dr. McCrary opined that RBS could reliably extrapolate with confidence intervals of 5.64, 6.57%, 7.0%, and 10.87%. *See* 10/16/15 McCrary RBS Report, ¶¶72-74, 79.

<sup>35</sup> Credit Suisse claims (Mot. at 22) that another judge in this District "excluded [Dr. Singer] as unreliable." But the court did no such thing. *See Mazda v. Carfax, Inc.*, 13-cv-2680 (AJN), 2016 WL 7231941, at \*3 (S.D.N.Y. Dec. 9, 2016) (noting that "[n]either side has moved to exclude the other's expert").

have increased since Poynder's initial report. Dr. McCrary admitted that his criticism is inconsistent with Poynder's opinions and applies only if the jury disbelieves Poynder. *See* McCrary Dep. at 368:3-372:23.

Credit Suisse's counterfactual hypothetical will likely be inadmissible at trial. The Second Circuit has long held that "[a] hypothetical question must rest upon facts in evidence at the time the question is put," *Erie R. Co. v. Linnekogel*, 248 F. 389, 392 (2d Cir. 1917), and that expert testimony should be excluded "if it is based on assumptions that are 'so unrealistic and contradictory as to suggest bad faith' or to be in essence an 'apples and oranges comparison.'" *Boucher v. U.S. Suzuki Motor Corp.*, 73 F.3d 18, 21-22 (2d Cir. 1996); *see also id.* ("Admission of expert testimony based on speculative assumptions is an abuse of discretion.").<sup>36</sup>

Credit Suisse then argues (Mot. at 24) that Dr. Singer's definition of "pervasive" sharing paradoxically would not apply to a situation where many more SCI exchanges than found by Poynder occurred over many fewer days. As before, this is an irrelevant hypothetical: Plaintiffs have found that SCI was exchanged on all of the randomly sampled trading days. In any event, given Plaintiffs' adverse selection risk theory, there is nothing strange about that at all. Supposing (counterfactually) that Defendants had only exchanged SCI on a tiny fraction of all trading days, then market participants might not have bothered to widen their spreads in response to increased adverse selection risk.<sup>37</sup> Credit Suisse's hypothetical proves exactly why it was

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<sup>36</sup> *See also Redman v. Mar. Overseas Corp.*, No. 94 Civ. 0838 (SAS), 1996 WL 19010, at \*2 (S.D.N.Y. Jan. 17, 1996) ("Facts which are assumed in a hypothetical question must be substantially based on facts established in previous testimony adduced at trial."); *Cunningham by Cunningham v. Quaker Oats, Co. Fisher-Price Div.*, 107 F.R.D. 66, 80-81 (W.D.N.Y. 1985) ("Hypothetical questions must include facts supported by the evidence.").

<sup>37</sup> Suppose that 100,000 instances of SCI sharing exclusively occurred on only one day per month. Suspecting this, market participants might rationally choose to not defensively widen their spreads at all because there is only a 3% or so chance that they would be harmed in any given day by Defendants' collusion. But if 8,496 SCI exchanges were distributed throughout nearly all of the trading days in the class period, market participants would be far more likely to defensively increase spreads every day because they would infer that something was

reasonable for Dr. Singer to measure pervasiveness by trading days instead of total number of chats. Notably, neither Credit Suisse nor Dr. McCrary explains why defining pervasiveness by the total number of chats instead of trading days better demonstrates class-wide impact or why the share of trades involving SCI exchanges must be above a certain threshold to affect prices. The focus on class certification is whether Plaintiffs can prove class-wide impact. Plaintiffs have demonstrated that they can, and it does nothing to solve the ultimate question for Credit Suisse to suggest a straw man alternative.

To the extent Credit Suisse’s criticism warrants any consideration, it goes to weight instead of admissibility. Whether a different definition of “pervasive” should have been used and whether that definition should have incorporated other inputs like total number of chats is a matter for cross-examination. *See, e.g., Crouch v. John Jewell Aircraft, Inc.*, No. 3:07-CV-638, 2016 WL 157464, at \*21 (W.D. Ky. Jan. 12, 2016) (“[A] party’s disagreement with inputs into a methodology is generally not enough to have the methodology excluded under Rule 702. Rather, any perceived deficiencies as to inputs are generally proper issues of weight to be considered by the jury and attacked on cross-examination.”).

### **C. Dr. Singer Reliably Evaluates “Conditions Favorable to Collusion”**

Dr. Singer analyzed the DOJ’s six “conditions favorable to collusion” – factors consistent with Dr. Singer’s experience in the field<sup>38</sup> – and concluded that evidence common to the class exists for each factor. His methods for determining that each factor is supported by class-wide evidence were reliable, and his conclusions are permitted by the law.

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amiss based on the losses they were suffering even though they could not have been certain exactly when during the day collusive activity was occurring.

<sup>38</sup> Singer Reply Report, ¶3.

*In re Processed Egg Prods. Antitrust Litig.*, 81 F. Supp. 3d 412, 420 (E.D. Pa. 2015) is directly on point and supports Dr. Singer’s overall approach. In that case, an expert economist opined in support of class certification that the egg industry was conducive to price manipulation through output restriction based on various factors within the field of economics that are similar to those identified by the DOJ. *Id.* at 414, 422. The court denied a motion to exclude these opinions, holding that “[t]he cases all appear to agree that an economist is capable of testifying as to whether an industry’s market structure makes it particularly susceptible to collusion.” *Id.* at 421.<sup>39</sup> The court also rejected defendants’ argument that the economist was simply reading the record to find evidence supporting plaintiffs’ position, ruling that the expert was permitted to apply the collusion factors to the factual record and render an opinion. *Id.* at 423; *see also id.* (“His economic expertise allows him to opine on whether the evidence supports that these conditions for collusion were being met.”). In short, the court found that the economist’s “expertise is in knowing what evidence to look for,” and the economist in that case, “as experts regularly do,” cited the record so that he could test whether the data was consistent with plaintiffs’ theory of the case. *Id.*

That is exactly what Dr. Singer does here. As an antitrust economist, Dr. Singer’s expertise is in knowing: (1) what factors make a market susceptible to collusion; and (2) what type of evidence to look for relevant to those factors. He then identifies the relevant evidence and applies it to the relevant factors to reach his ultimate opinions. Any complaint about

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<sup>39</sup> See also *U.S. Info. Sys., Inc. v. Int’l Bhd. of Elec. Workers Local Union No. 3 AFL-CIO*, 313 F. Supp. 2d 213, 240 (S.D.N.Y. 2004) (“Economists often explain whether conduct is indicative of collusion. For example, courts have held that an expert is permitted to testify that the ‘climate’ of a specific market was consistent with a conspiracy.”) (citing cases).

whether Dr. Singer reviewed the correct evidence or found enough of it to support each factor merely goes to the weight of his testimony, and not its admissibility.

Credit Suisse argues (Mot. at 26) that Dr. Singer did not conduct a proper analysis of the sixth DOJ collusion factor<sup>40</sup> before concluding that class-wide evidence shows that FX traders were socially connected because he cited only “a handful of *ad hoc* examples.” But Dr. Singer did more than that. [REDACTED]

[REDACTED]<sup>41</sup> That is exactly what Dr. Singer was required to do, *Processed Egg Products*, 81 F. Supp. 3d at 422 (“[A]n economist not only should, but must, examine the factual record to arrive at his opinion.”), and nothing more is required. Credit Suisse fails to identify exactly what additional analysis should have been performed and does not deny that this evidence is entirely class-wide.<sup>42</sup>

Dr. Singer’s opinions about FX market concentration (the 1st DOJ factor) are also reliable. Credit Suisse incorrectly argues (Mot. at 27) that Dr. Singer unreasonably did not use the Herfindahl-Hirschman Index (“HHI”) to assess market concentration. HHI is certainly a common and widely accepted tool used to assess market concentration. But the case law does not suggest that HHI is the only reliable tool in a price-fixing case or that it is a litmus test for expert admissibility. *Cf. Ball Mem. Hosp., Inc. v. Mut. Hosp. Ins., Inc.*, 784 F.2d 1325, 1336 (7th

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<sup>40</sup> See DOJ, *Price Fixing, Bid Rigging, and Market Allocation Schemes: What They Are and What to Look For*, at 5 (“Collusion is more likely if the competitors know each other well through social connections, trade associations, legitimate business contacts, or shifting employment from one company to another.”).

<sup>41</sup> See Singer Report, ¶33.

<sup>42</sup> See Trial Tr., *U.S. v. Usher*, 17 Cr. 19 (RMB) (S.D.N.Y. Oct. 12, 2018) at 387:21-388:20 (describing social meeting with Usher); *id.* at 411:11-16 (describing chat room participants as his “friends”); *id.* at 426:22-427:4 (“[I] considered myself friends with all of them. So we talked about things outside of specifically our job, trading currency. So personal information would be in there too.”).

Cir. 1986) (Easterbrook, J.) (“Market share is just a way of estimating market power, which is the ultimate consideration. When there are better ways to estimate market power, the court should use them.”); *In re Cox Enters., Inc. Set-Top Cable Television Box Antitrust Litig.*, No. 12-MDL-2048-C, 2014 WL 107674, at \*5 (W.D. Okla. Jan. 9, 2014) (denying *Daubert* challenge to expert accused of relying solely on HHI to assess market power because expert used HHI in addition to several other factors). In fact, HHI has limitations and detractors in academia.<sup>43</sup>

In contrast, Defendants’ experts calculate the HHI in a way that renders it meaningless in this conspiracy case. Dr. Ordoover’s HHI calculation explicitly assumes that Defendants *do not* coordinate on price (or anything else). See Singer Reply Report, ¶¶6-7. Dr. Ordoover’s HHI calculation is therefore highly misleading because it impermissibly assumes that Defendants are horizontal competitors not engaged in a price-fixing conspiracy. Dr. Singer correctly found that, because this case concerns an alleged price-fixing cartel, the most relevant statistic is Defendants’ *combined* share of FX trading. Combined share measures the extent to which Defendants could influence market outcomes if they worked together. As Dr. Singer demonstrates, the correct calculations yield HHI values far in excess of the thresholds used in the *Merger Guidelines* to define highly concentrated markets. See Singer Reply Report, ¶8.

Credit Suisse’s next argument (Mot. at 28) that Dr. Singer’s analysis of the second and third DOJ factors<sup>44</sup> is flawed because he inconsistently defines the product in question

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<sup>43</sup> See, e.g., Toby Roberts, *When Bigger is Better: A Critique of the Herfindahl-Hirschman Index’s Use to Evaluate Mergers in Network Industries*, 34 PACE LAW REVIEW 894, 895-907, 910-11, 915-21 (2014) (arguing that HHI should be abandoned when analyzing network industry mergers, reviewing alternatives to HHI, discussing HHI’s limitations, and noting that Herfindahl himself thought that his index should serve as just one among many tools).

<sup>44</sup> The second DOJ factor states: “The probability of collusion increases if other products cannot easily be substituted for the product in question or if there are restrictive specifications for the product being procured.”

mischaracterizes what Dr. Singer did and misses his point. Dr. Singer defines the product in question for both factors as FX transactions. *See* Singer Report, ¶27 (“Customers wishing to buy or sell foreign currency must *transact* with a price-making liquidity provider. . . .”); *id.* at Heading to ¶¶28-30 (“Foreign Currency is a Homogeneous Commodity, and the Pricing of *FX Transactions* Varies Predictably With Common Factors”); Singer Reply Report, ¶22 n.77. This is consistent with Dr. Singer’s earlier explanation that the bid-ask spread measures the cost to class members of “a ‘round-trip’ transaction” in the FX market. *See* Singer Report, ¶15. His observation that Defendants provide liquidity simply means that Defendants transacted with class members. There is no analytical inconsistency.<sup>45</sup>

Credit Suisse’s brief later reveals that its arguments are not about Dr. Singer’s methodology, but rather about his conclusions. *See* Mot. at 28-29 (arguing that Dr. Singer’s alleged inconsistencies “undermine Singer’s conclusions.”). *Daubert* motions, however, cannot be used to attack an expert’s conclusions. *Daubert*, 509 U.S. at 595 (“The focus, of course, must be solely on principles and methodology, not on the conclusions that they generate.”).

#### **D. Dr. Singer’s Regressions Are Reliable**

Credit Suisse wrongly claims (Mot. at 29) that Dr. Singer’s EBS Regression is unreliable because it arbitrarily compares only average EBS spreads in the last six months of the six-year Class Period with the first six months after the Class Period. In fact, Dr. Singer’s regression used data from *all* available time periods, and he defines the Conduct Period as it is defined in the

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The third DOJ factor states: “The more standardized a product is, the easier it is for competing firms to reach agreement on a common price structure. It is much harder to agree on other forms of competition, such as design, features, quality, or service.”

<sup>45</sup> Credit Suisse incorrectly claims that Dr. Singer used inconsistent definitions to suppress the fact that the services provided by Defendants varied from dealer to dealer. Dr. Singer has been up front that his opinions here do “not imply that all FX transactions are the same, or that they are priced identically,” Singer Report, ¶29, and he acknowledged wide variation in FX transactions and pricing based on numerous factors, *id.*, ¶30.

operative Complaint.<sup>46</sup> Although the argument is undeveloped in its motion, Credit Suisse is apparently relying on Dr. Ordoover's opinion that Dr. Singer's decision to include a set of year fixed effects in his EBS Regression (a standard econometric technique) means that his regression captures the difference in average half-spreads for only a portion of the class period.<sup>47</sup> But that is false. It is not mathematically possible for Dr. Singer's model to produce the effect he estimated without using all available data (December 2007–December 2015).<sup>48</sup>

The two so-called “corrections” that Dr. Ordoover makes to Dr. Singer's EBS Regression that purportedly show narrower spreads during the Class Period contain no citations to relevant authority and are fatally flawed. Dr. Ordoover's first “correction” is to discard the time-period fixed effects,<sup>49</sup> which are highly statistically significant. But doing so creates omitted variable bias according to elementary econometric principles.<sup>50</sup> Dr. Ordoover's second “correction” is to arbitrarily discard more than **83 million data points** (or approximately 86% of Dr. Singer's sample) from Dr. Singer's regression model,<sup>51</sup> even though there is no basis in econometrics for doing so.<sup>52</sup>

If anyone's analysis is based on only a small sliver of the Class Period and should therefore be stricken as unreliable, it is Dr. Ordoover's. He defines a “different conduct variable,”

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<sup>46</sup> See Singer Report, ¶43 (“Consistent with the definition of the Class Period, the variable Conduct is set equal to one before December 31, 2013 – shortly after the Department of Justice confirmed its active investigation into Defendants' Challenged Conduct – and to zero thereafter.”).

<sup>47</sup> Ordoover Report at Appendix H, ¶2.

<sup>48</sup> See Singer Reply Report at Figure 2; *id.*, ¶62.

<sup>49</sup> Ordoover Report, ¶94.

<sup>50</sup> See Singer Reply Report, ¶57 (citing relevant sources).

<sup>51</sup> Ordoover Report, ¶¶95-96.

<sup>52</sup> See Singer Reply Report, ¶58 (citing relevant sources).



which is “turned on only in the last six months of the Class Period.”<sup>53</sup> In assuming that the Challenged Conduct was absent until mid-2013, Dr. Ordoover imposes an econometric model that is inconsistent with Plaintiffs’ claims in that it disregards the overwhelming majority of years in the Class Period – the very type of cherry-picked analysis that Credit Suisse chastises. In short, only by ignoring most of the data and most of the Class Period can Dr. Ordoover gin up the results cited in his client’s *Daubert* brief.

Credit Suisse argues (Mot. at 30) that Dr. Singer’s overall conclusion generated by the Cointegration Regression cannot be supported because the EBS Regression relates only to spreads and not prices. Credit Suisse also argues (*Id.* at 31) that the correlation between EBS spreads and customer spreads is “weak” based on a nonsensical analysis by Dr. Kleidon that generates contradictory results inconsistent with basic industry facts. But these, too, are purely attacks on Dr. Singer’s conclusions, not his methodology. Nowhere does Credit Suisse or its experts dispute that Dr. Singer’s Cointegration Regression (or his EBS Regression) is implemented correctly using standard methods in the relevant field. This alone dooms Credit Suisse’s *Daubert* challenge here. *Daubert*, 509 U.S. at 595.

In any event, Credit Suisse’s criticisms are wrong. The so-called “unproven and untested analytical leap” that Dr. Singer allegedly takes is well-accepted industry fact. Industry sources and common evidence show that EBS prices play the role of market benchmarks that “serve[] as the anchor for customer prices.”<sup>54</sup> Credit Suisse’s unjustified denial of this basic truth cannot

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<sup>53</sup> Ordoover Report at Appendix H, ¶2.

<sup>54</sup> Singer Report, ¶17 (citing Carol Osler, Alexander Mende, & Lukas Menkhoff, *Price Discovery in Currency Markets* 30 J. INT’L MONEY & FIN. 1696-1718, at 1699 (2011) and Carol Osler, *Foreign Exchange Microstructure: A Survey*, ENCYCLOPEDIA OF COMPLEXITY AND SYSTEM SCIENCE (2009) (“As the electronic brokerages took over, their best posted bid offer quotes became the benchmark for market prices.”)); *see also*

serve as grounds for striking Dr. Singer. And the claim that Dr. Singer's opinion is nothing more than *ipse dixit* ignores the fact that he analyzed data for 52 currency pairs and found that the  $R^2$  exceeded 99% for 48 pairs and exceeded 96% for 50 pairs, confirming again that interbank prices are highly predictive of the prices paid by class members.<sup>55</sup>

Finally, Credit Suisse half-heartedly argues in a footnote (Mot. at 29 n.24) that Dr. Singer's opinions should be excluded because his two regressions only measure average impact. This critique ignores the fact that Dr. Singer adopted a standard two-step econometric method (described earlier) specifically designed to avoid this alleged problem. In his first step, Dr. Singer showed generalized (average) price effects. In his second step, he showed that these generalized effects were transmitted broadly across class members. As Dr. Singer notes in his reply report (¶1), his standard, two-part analysis has been employed successfully in other antitrust class action litigations.<sup>56</sup>

In sum, Dr. Singer employed well-accepted and reliable methodologies. Credit Suisse's attacks focus on Dr. Singer's overall conclusions or raise mere differences of opinion that go to the weight of his testimony and not its admissibility.

### **CONCLUSION**

For the foregoing reasons, Plaintiffs respectfully request that the Court deny Defendants' Motion.

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Deposition of Jamie Lawes (Nov. 29, 2018) 264:18-265:17; 10/16/18 Testimony of Matthew Gardiner in *U.S. v. Usher*, 17 Cr. 19 (RMB) (S.D.N.Y.) at 882:22-25.

<sup>55</sup> Singer Supplemental Report, ¶5.

<sup>56</sup> See *In re High-Tech Employee Antitrust Litigation*, 985 F. Supp. 2d 1167, 1206 (N.D. Cal. 2013) ("Plaintiffs noted that Dr. Leamer's approach followed a roadmap widely accepted in antitrust class actions that uses evidence of general price effects plus evidence of a price structure to conclude that common evidence is capable of showing widespread harm to the class."); *Johnson v. Arizona Hosp. & Healthcare Ass'n*, No. CV 07-1292, 2009 WL 5031334, at \*8, \*11 (D. Ariz. July 14, 2009) (finding predominance where conduct was alleged to suppress bill rates for nurses generally and evidence was presented that bill rates were correlated with nurse pay rates).

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Respectfully submitted,

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### **CERTIFICATE OF SERVICE**

I hereby certify that on March 1, 2019, I caused the foregoing to be electronically filed with the Clerk of the Court using the CM/ECF system, which will send notification of such filing to the email addresses denoted on the Electronic Mail Notice List.

Dated: March 1, 2019

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s/ Christopher M. Burke  
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